

**THE CALIFORNIA ENERGY COMMISSION'S  
NEED FOR AND USE OF  
ENERGY CONSUMPTION AND RELATED DATA  
POST RESTRUCTURING**

**By**

**California Energy Commission  
Demand Analysis Office Staff**

**Submitted for Consideration at Energy Commission's Workshop on  
Energy Consumption Data Needs for Market Analyses**

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## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ii
I. INTRODUCTION AND SUMMARY .....	1
II. PAST AND CURRENT USES OF ENERGY CONSUMPTION AND RELATED DATA REPORTED TO THE CEC .....	7
III. POST-RESTRUCTURING USES OF ENERGY CONSUMPTION AND RELATED DATA AT THE CEC .....	16
IV. ENERGY CONSUMPTION AND RELATED DATA NEEDS (POST- RESTRUCTURING) .....	28
V. OPTIONS FOR THE CEC TO OBTAIN ENERGY CONSUMPTION AND RELATED DATA (POST RESTRUCTURING) .....	37
VI. CONFIDENTIALITY CONCERNS .....	41
VII. OTHER ISSUES .....	46
VIII. STAFF RECOMMENDATIONS .....	49

## **EXECUTIVE SUMMARY**

In May and June 1997, the California Energy Commission (CEC) initiated a Rulemaking and investigation, respectively, to determine how its data collection regulations should be modified as a result of electric industry restructuring and other changes in energy industries. In July 1997 the CEC completed a strategic planning process that determines what functions the CEC intends to perform in the future. This paper is CEC Staff's initial effort to describe how one facet of data collection requirements -- electric and natural gas energy consumption by end-users -- should be modified to support the functions to which the CEC has committed itself.

Energy consumption data as collected by the CEC through Quarterly Fuel and Energy Report (QFER) regulations has played a major role in the industry monitoring and centralized planning activities to which the Warren-Alquist Act committed the CEC. While the restructuring of the industry lessens the need for, and role of, centralized resource planning processes, CEC Staff believe that the CEC has determined that the underlying intent of the WAA as well as some legislative direction, has committed the CEC to a variety of functions that require collection and analysis of energy consumption data. This paper describes eleven functions that utilize energy consumption data of various types for market monitoring, policy assessment, program planning and evaluation, and customer information dissemination activities.

Five categories of energy consumption data are identified as essential to support the eleven CEC functions. Comparing these data categories to previous QFER reporting requirements identifies some data collection forms that can be modified slightly, others that can be merged together resulting in fewer forms, and some forms that can be eliminated. Various issues about what entity should report data to the CEC are discussed with advantages and disadvantages identified. Among these is the need for private energy service providers to submit energy consumption data to the CEC in parallel with utilities.

Access to data and the designation or treatment of data as confidential in order to insure customer privacy and to protect commercial trade secrets are discussed as opposing perspectives requiring a renewed focus on confidentiality issues in a newly competitive marketplace. The report identifies the possible role of a data processing "agent" that Staff might play in using data that has been designated confidential to produce aggregate results that are not confidential and can be released to the public and market participants.

The paper concludes with a series of short-run and long run recommendations. The short-run recommendations permit the CEC to continue to collect energy consumption data that is important to the CEC's functions, but recognize the competitive aspects of new market participants that have different concerns about consumption data than had utilities in a monopoly industry structure. The long-run recommendations describe a variety of additional

changes needed to ensure that data can be collected and accessed electronically to provide the greatest efficiencies of collection as well as the broadest level of communication to the public.

*Disclaimer: The views and conclusions in this document are those of the Staff of the Demand Analysis Office and should not be interpreted as necessarily representing the policies of either the California Energy Commission or the state of California.*

## **I. INTRODUCTION AND SUMMARY**

### **A. Purpose and Scope of Paper**

On May 21 and June 25, 1997, the California Energy Commission (CEC) adopted orders establishing a combined Rulemaking and Informational Proceeding (OIR/OIIP) to consider a broad range of procedural and substantive changes to the CEC's data collection and confidentiality regulations. The Ad Hoc Information Committee (Committee) and Staff held public workshops on July 1 and August 20 to begin a dialogue specifically on the issues of confidentiality procedures and energy consumption data currently collected under the CEC's Quarterly Fuels and Energy Report (QFER) regulations.<sup>1</sup> A third workshop to be held on October 2 will discuss the CEC's future need for and use of energy consumption and related data. This paper is being submitted in advance of the workshop to: 1) stimulate discussion at the October workshop by providing background information on the specific uses and needs for energy consumption and related demand-side data in the post-restructured California electricity industry; and 2) make specific recommendations to the Ad Hoc Information Committee.

Energy consumption and related data encompasses many forms and types of data from multiple energy sources and end users. In this report, Staff focuses primarily on historical electricity and natural gas consumption,<sup>2</sup> sales and revenue from electricity and natural gas deliveries to end users. The focus is on data necessary to support specific post-restructuring analyses and functions both within and outside the CEC. With few exceptions, most of the necessary data is presently collected under QFER regulations, Title 20 of the California Code of Regulations (CCR). As part of this paper, Staff also identifies related categories of demand-side data that are presently collected as part of other provisions of Title 20 as well as new energy consumption-related data needs. Current data reporting requirements which Staff believes no longer justified are also discussed in this paper.

Staff uses energy consumption data for a number of analytical and information dissemination purposes, frequently in response to requests from external stakeholders, including local agencies, consulting firms, research laboratories, firms wanting to venture into the electricity and natural gas retail markets, and utility companies. Recently, data was used for estimating the impacts of

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<sup>1</sup> QFER Regulations are contained in Title 20 of the California Code of Regulations (CCR), Section 1304.

<sup>2</sup> Use of energy for a final process whether purchased from a utility, another supplier, or produced by the customer itself.

AB 1890 on customer groups and developing baseline descriptions of electricity and natural gas use for the Legislature.

Energy consumption data has been and will continue to be critical in helping Staff evaluate California's energy systems, design and evaluate market transformation programs, and assess the impacts of electric industry restructuring on the various population segments in California. Aggregated energy consumption received via QFER submittals forms the core database from which the analyses begin. QFER data allows for regional analysis and combined energy/economic analyses because it is collected on a county and Standard Industrial Classification (SIC) code basis. This level of disaggregation permits the monitoring of specific industries and the development of realistic projections of energy use and resulting environmental impacts.

Energy consumption and revenue data by small geographic regions and SIC level of disaggregation has been the core of the energy demand forecasts prepared by CEC Staff and by most major utilities. It is critically needed for the retail market analyses the CEC will perform to monitor the evolving competitive electricity and natural gas retail markets. The data can also help assess whether there are transmission and distribution barriers to full retail competition in certain geographic markets. It can be used to determine the geographic market share and concentration of electricity retailers (a key indicator of a well-functioning market). Additionally, the data will help the CEC identify energy efficiency opportunities and target market transformation programs.

Staff expects the collection and dissemination of aggregate energy consumption information to contribute to the development of well-functioning energy markets. Customers could use timely information provided by the CEC to compare their energy rates to averages within their geographic region and customer sector. Similarly, information about retail market shares could be helpful for energy retailers to plan and implement their marketing strategies. In keeping with CEC policy, it is Staff's intention to use energy consumption information in a very active way to encourage competitive retail markets. Also, as an independent objective observer rather than a vested market participant, the CEC can use geographically defined trends in electricity consumption and retail prices to help explain expected and unexpected events, tracking and anticipating effects of the newly competitive retail electricity market, similar to the activity the CEC is effectively performing as part of its regular monitoring of the retail gasoline market.

Options for the CEC to obtain necessary energy consumption and related data are discussed, along with specific confidentiality concerns related to the necessary data and expected uses identified. Finally, Staff's short-term (1-3 years) and longer-term recommendations are presented.

## **B. Scope of the CEC's Energy Market Information Proceeding**

On August 26, the Committee issued a notice outlining a preliminary list of information-related issues and topics that currently define the scope of the Energy Market Information proceeding.<sup>3</sup> These encompass not only regulatory and statutory changes but also opportunities for cooperative collection and use of energy-related data, improved information technology and management within the CEC and, generally, a refined understanding of the appropriate roles and functions of government, private and public partnerships. The breadth of data and information-related topics that the Committee plans to discuss in this proceeding are listed in the Notice, organized into three broad categories of CEC functions:

- Public Interest Program Planning and Evaluation;
- Fostering a Customer Friendly Information Environment; and
- Market Performance Monitoring and Policy Assessment

The objective is to be responsive to the needs of all participants in the restructured electricity industry and increasingly competitive marketplace. The review and reconsideration of the CEC's data-related functions is also part of the implementation of the CEC's newly-adopted Strategic Plan objectives and their supporting data collection, analysis and dissemination activities. The ongoing collection of energy consumption and related data, combined with appropriate confidentiality procedures, are integral elements which cut across all three functional categories and which will be essential in order to implement these strategic planning objectives.

The August 1997 notice also stated its intent to conduct additional public workshops to discuss data and information-related issues concerning CEC functions. Other workshops are planned to address generation and transmission related data, customer preference details obtained from survey, load research projects, demand forecasting, resource planning requirements, and related subjects.

Based on the input from the upcoming workshops, the Committee is expected to release a planning document which will include a proposal for changes to the Title 20 data collection regulations and to the Warren Alquist Act, as appropriate.

### **C. Summary of July Workshop and Comments**

On July 1, the Committee conducted its first public workshop in the OIR/OIIP, broaching the full range of issues and specifically discussing potential changes to the CEC's current confidentiality regulations and specific data collection activities. Regarding energy consumption data, the discussion first focused on the subject of broadening the definition of "electric utility"

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<sup>3</sup> Ad Hoc Information Committee, *Preliminary List of Issues and Notice Establishing Mailing List for the Energy Market Information Proceeding*, issued August 26, 1997.

(as used in current QFER regulation) as a means of collecting QFER data equally from all energy service providers in the future. Some parties believed that the change might serve as an interim step but that statutory changes were probably necessary in order to establish full CEC jurisdiction, while others believe the current statutory language is sufficient to support the expanded regulatory definition.

Staff and other parties were asked to provide the Committee with a listing and description of energy consumption data reporting requirements and demand-side data collection activities (surveys, load research, etc.) being conducted by public and quasi-governmental entities. Staff was asked to compile a comprehensive list of all categories of energy consumption and related data currently collected, describing the content and source of the data and its past and current uses. Responses to the Committee's request have served as an input to this paper.

Also on July 1, Staff conducted its own workshop focusing on issues and questions related to the CEC's energy consumption data collection, analysis and dissemination activities. The questions posed by Staff focused primarily on data currently reported as part of QFER -- appropriate confidentiality designation, obtaining data from energy service providers (ESPs) as well as utility distribution companies (UDCs), options and information technologies available for streamlining the collection, retrieval and public access to QFER data while insuring quality control. The questions also addressed the implications of the federal government's new classification system for U.S. economic data, known as the North American Industry Classification System (NAICS), which will, at some point, replace the SIC classification system used by the CEC, and the need for energy consumption data at the finest geographical and customer sector levels of disaggregation possible. Related confidentiality concerns were also discussed. In all cases, Staff sought parties' views about the most cost-effective and least burdensome approaches the CEC could use to collect necessary energy consumption and related data. The utilities' responses conveyed common concerns and recommendations to Staff, as follows.

- Confidentiality procedures must protect and conceal individual customer identity and information. SDG&E extended this to insuring protections against small group identification, urging careful aggregation techniques to insure that other information it considers proprietary (e.g., fuel volume and cost) is held confidential. PG&E suggests that parties be allowed to self-designate confidential records, placing the burden for demonstrating the benefits of disclosure on parties requesting confidential data.
- Consumption data should be collected from whomever performs the metering and billing function; this may or may not be the utilities in the future. The CEC should consider budgeting for primary data collection activities, including the use of statistical sampling of consumers as means of collecting some types of demand-side data.
- The CEC should discern the needs and uses of market participants first and then determine the best methods for collecting necessary data.



- CEC Staff should meet and confer with other agencies to understand and coordinate data collection activities and thereby minimize redundancies and reduce the overall costs of regulation.
- Electronic transfer of information should be pursued; Staff should work with market participants and other government agencies to develop electronic reporting requirements and establish a common platform to serve multiple needs and insure ease of access.
- The CEC should work with the Office of Management and Budgets to develop a translation table for converting SIC designations currently in use to the newly adopted NAICS. At least one utility response indicated desire for a gradual conversion over the course of three years.
- Possible means of obtaining smaller geographic disaggregation could use city and/or zip code descriptors.
- All parties were concerned with the additional costs of developing and implementing new information reporting requirements.

#### **D. Proposed Changes to the CEC's Confidentiality Regulations**

On August 5, Staff filed proposed changes to the CEC's confidentiality regulations, including specific draft language changes. The proposal suggests streamlining the current application, review and approval procedures for granting confidentiality. These issues were discussed at a Staff workshop held August 20.

While most of the issues debated were procedural, specific applications related to energy consumption data were discussed. Discussion focused primarily on concerns regarding customer privacy protection. Data collection and confidentiality procedures currently used by the CEC under the Petroleum Industry Information Reporting Act (PIIRA) were suggested as a model for collection of energy data in the future. Aggregation techniques designed to protect customer privacy were mentioned, with parties asking for suggestions from Staff. Section VI contains a discussion of options and procedures for designating and protecting confidential energy consumption data.

Activities at the CPUC to develop a customer information database (CID), including a proposed confidentiality methodology, were briefly described with parties suggesting that the CEC coordinate its procedures with the CPUC's in this regard.

The option of pre-designation of selected types or categories of data as *prima facie* confidential was also discussed at length. Staff was directed to prepare a list of data categories, starting with energy consumption and related data, which Staff views as appropriate candidates for automatic designation. An initial description of pre-designation language was filed with parties on

September 5. Final comments from all parties on proposed language changes, including automatic designation, were filed with the Committee on September 15.

Staff's recommendations regarding data categories or information to be treated as confidential without an application for confidentiality encompass a broader universe of energy consumption data than that which is discussed in this report. Staff identified three general categories of customer-specific information that should be held confidential, where the presence of certain identifiers allows the disclosure of a customer's identity with reasonable effort by a third party. These categories include information collected: 1) from energy consumption metering; 2) through energy surveys conducted by mail, telephone, or on-site inspection; and 3) from energy load research metering projects. Staff's recommendations regarding aggregation techniques and other guidelines for public release of confidential data are discussed in Section VI.

#### **E. Staff Recommendations Regarding Future Collection of Energy Consumption and Related Data**

Staff's recommendations regarding CEC actions to ensure the collection of necessary energy consumption and related data in the future are summarized in Section VIII of this document. That section presents the recommendations as a list of proposed short and long-term actions. Staff proposes this short-term/long-term approach as it realizes that continued collection of energy consumption data during the restructuring transition will require a series of faster actions than what all stakeholders (including the CEC) can currently undertake, given the need for them to concentrate on the implementation details of making the newly deregulated electricity market function by January 1, 1998.

## **II. Past and Current Uses of Energy Consumption and Related Data Reported to the CEC**

Section II describes the past and current uses of QFER data, focusing primarily on: 1) data relating to electricity and natural gas consumption by ultimate end users, and 2) data relating to natural gas supplies and deliveries. Part A below discusses how QFER data is used to study the consumption of electricity and natural gas at the end-user level. Part B describes how QFER data is used to analyze the dynamics of the natural gas supply and transportation system in California. The uses of QFER data related to electric generation and transmission system analyses is only briefly discussed in Part C as Staff anticipates a separate undertaking of public review, workshops, and comment within a later phase of this proceeding.

### **A. Electricity and Natural Gas Consumption by End Users**

#### **1. Existing QFER Database on Electricity and Natural Gas End Use Consumption**

Since 1976, the CEC has collected consumption and revenue data on natural gas and electricity at the aggregated end-user level. The QFER database is unique in its depth of detail. In total, it is a monthly chronicle of how 3,872 billion kWh of electricity and 269 billion therms of natural gas have been consumed since January 1976 by over 2,000 different customer categories -- and how much those customers paid for the energy. This level of detail allows comparisons of energy demand patterns between many different types of economic activities over many years. Because geographical data is included in the QFER database as well, research is possible into relationships between energy consumption and a variety of economic and demographic variables.

End uses in the non-residential economic sector are categorized according to SIC codes.<sup>4</sup> Residential data are classified into six special subdivisions, based on the dwelling and meter type. QFER's database includes not only sales to utility customers but consumption by small power producers<sup>5</sup> and gas customers served directly by non-utility suppliers. As Table 1 indicates, more than 250 entities presently provide energy consumption data to the CEC.

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<sup>4</sup> The SIC code system is described in the *Standard Industrial Classification Manual* (1987) published by the U.S. Executive Office of the President, Office of Management and Budget, and is used to promote the comparability of data describing various facets of the U.S. economy.

<sup>5</sup> Small power producers must file QFER forms if they operate facilities with installed generating capacity of at least 10 megawatts and either: 1) burn fossil fuels for generation or 2) do not furnish all their generated electricity to an electric utility.

**Table 1**  
**Energy Consumption Data Collected by QFER**

Reporting Entity	Data Collected	Number of Reporters	Filing Frequency
Electric/Gas Utility	Monthly Gas & Electric Consumption	60	Quarterly
	Annual Gas & Electric Consumption by County	13	Annually
Non-Utility Electricity Generator	Monthly Gas & Electric Consumption	130	Annually
Gas Producer or Marketer	Annual Gas Deliveries by County	50	Annually

End-use electricity and gas consumption is reported on four different QFER forms: 1) Form 4 - *Electric/Gas Utility Monthly Sales/Deliveries by SIC Code*; 2) Form 5 - *Electric/Gas Utility Annual Sales by SIC Code and County*; 3) Form 10A - *Gas Producer/Marketer Annual Report*; and 4) Form 11 "Non Utility Monthly End-use of Generated Electricity".<sup>6</sup> A tabular comparison of each form is detailed in Table 2.

**Table 2**  
**QFER Forms Reporting Consumption by SIC Code and Res. Classification**

	Form 4	Form 5	Form 10A	Form 11
Energy Type	Electric & Gas	Electric & Gas	Gas	Electric
Companies Submitting Data	Utilities	Utilities	Gas Producers & Marketers	Non-utility Electric Generators
<b>DETAIL OF DATA FILED</b>				
Number of Accounts	Yes	Yes	Yes	No
Energy	Yes	Yes	Yes	Yes
Revenues	Yes	Yes	No	No
County	No	Yes	Yes	Yes
Filing Frequency	Monthly	Annually	Monthly	Monthly
Forms Submitted	Quarterly	Annually	Annually	Annually

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<sup>6</sup> Data collected by QFER Forms which detail the natural gas deliveries and receipts by gas utilities is not shown here, though these forms do describe these activities according to groups of SIC codes. Those forms are discussed in the section of this paper dealing with data requirements for analyses of natural gas markets.

## 2. How is QFER Consumption Data Used?

The QFER database's uniquely detailed picture of energy consumption has made it crucial for analyses of energy demand that are conducted both within and outside the CEC. Typically, forecasts of energy demand for a specific set of related customer categories rely on estimates of historic, existing and future energy use by individual appliances and machinery. To test the plausibility of various model assumptions, demand models are usually "backcasted" -- estimated not only for consumption in the future but also in the past. DAO Staff uses QFER data to compare each of its demand model backcasts of historical consumption to actual recorded consumption. Based on this comparison, the model can be adjusted until it can provide a satisfactory explanation of recorded history.

Staff presently involved in several assessment projects also rely on QFER data for analysis. Consumer choice team members use QFER data to analyze changes in electric and gas consumption patterns stemming from energy market restructuring. Staff analyzing the reformulated gasoline market use QFER data to track refinery electric and gas consumption, and report significant changes in its weekly gasoline updates. The global climate change team tracks natural gas consumption for various purposes. Finally, Staff responsible for determining priorities for end-use technology R&D funding analyze energy consumption patterns to understand the potential impact of proposed programs.

Outside the CEC, QFER data is used for various types of analyses. California air quality districts study energy consumption in their areas. Municipal governments use gas and electric consumption data to analyze their community energy consumption or verify end-user tax collections. Gas producers use monthly gas consumption data to study how wet years affect hydro versus gas used for electric generation. Recently, requests for electric consumption data to assess the changing electricity market in California have also increased.

Trends in QFER data requests show that most requests came from outside the CEC, and that the number of companies and private consultants requesting data on end-use consumption is growing. From January 1995 through August 1997, the QFER unit processed 222 formal data requests. Requests for aggregated end-use data (202) greatly outnumbered requests for other QFER data (33). Non-CEC entities accounted for 116 requests made during this period compared with 86 requests from CEC Staff.

Table 3 categorizes the requests made from outside the CEC. The intent of the various requests was not always supplied when the request was made, so the arrangement of requests by topic includes judgments based on the type of information requested and the source of the request. The table suggests that traditional "energy planning" uses have declined recently as "market research" has become more important. This change reflects requests from private companies and utilities seeking more specific information on California's energy consumers, such as the number of accounts per SIC code group.

**Table 3**  
**Requests from Outside the CEC for Consumption Data by Topic**

General Topic	1995	1996	1997 YTD <sup>1</sup>	Total
Energy Planning	17	12	6	35
Market Research	3	7	14	24
Unknown	4	7	11	22
Air Quality & Global Warming	5	4	3	12
Outreach & Publication	2	7	1	10
Policy Development	1	2	4	7
Technology & Efficiency	2	3	1	6
Total	34	42	40	116

<sup>1</sup> Through August 31, 1997.

Table 4 shows the sources of QFER data requests originating outside the CEC. Most requests came from private consultants or other companies. Combined with national laboratories and colleges, the total number of requests from these groups amounts to over half of the total requests since 1995. The reader should note that the total for 1997 reflects activity through the end of August only. Some of the specific types of information provided to consultants, electric and gas utilities and air quality districts, and how that data was used is shown in Appendix Table A-1.

**Table 4**  
**Requests for Consumption Data from Outside the CEC by Source**

Source	1995	1996	YTD 1997	Total
Private Consultant or Other Company	15	16	23	54
National Laboratories, Colleges, Students	5	7	1	13
Electric and Gas Utilities	2	8	3	13
Local Air Resource Agencies	5	3	3	11
Cities (Excluding Electric Utilities)	2	4	2	8
Legislature and Governor's Offices	0	2	1	3
Other Public Agencies	1	2	2	5
Unknown	1	0	4	5
Public Policy Advocates	2	0	0	2
Newspapers	1	0	1	2
<b>Total</b>	<b>34</b>	<b>42</b>	<b>40</b>	<b>116</b>

<sup>1</sup> Through August 31, 1997.

Table 5 presents recent patterns for the number of requests for data on energy consumption originating within the CEC. More than half of the requests originated in the Demand Analysis Office (DAO). It is clear that the QFER data are being actively used to support analyses of trends in consumption and the impact of electric restructuring on energy use paths. Other requests for information are fairly evenly distributed among a variety of CEC offices, representing CEC work in energy technologies, fuels, research and development issues, and electricity resource assessment.

**Table 5**  
**Number of Requests for Consumption Data from Within the CEC by Source**

Source	1995	1996	YTD 1997	Total
Demand Analysis Office, EIA Division	4	22	16	42
Fuel Resources Office, EIA Division	1	3	3	7
Commissioners' Offices	0	3	3	6
Energy Technology Development Division	2	4	0	6
Energy Efficiency Division	0	2	4	6
Research & Development Office, ETD Division	1	3	1	5
Electricity Resource Assessment Office, EIA Division	0	2	2	4
Executive Office	0	3	0	3
Technology Evaluation Office, ETD Division	0	0	3	3
Budget Office, ASD	0	2	0	2
Engineering Office FS&E Division	0	0	2	2
<b>Total</b>	<b>8</b>	<b>44</b>	<b>34</b>	<b>86</b>

<sup>1</sup> Through August 31, 1997.

## B. The Natural Gas Supply and Distribution System in California

Having discussed the role of QFER data in analyzing energy consumption, this section shows the significant ways that QFER aids analyses of California's natural gas supply and distribution system. Current requirements for reporting data on natural gas supply and distribution to QFER are discussed in the first part of the section. The second part shows how CEC Staff and analysts outside the CEC use this information from QFER.

### 1. Existing QFER Data on Natural Gas Supply and Transportation

Since 1976 QFER has been collecting information on the distribution and supplies of natural gas. Table 7 shows the QFER Forms that relate to gas supplies.

**Table 6**  
**Natural Gas System Data Collected by QFER**

Reporters (# Entities)	Form	Topic	Information	Data Recorded	Forms Submitted
Gas Utilities (8)	6	Sent Out or Transported	Gas amounts by seven core and noncore customer types	Monthly	Quarterly
			Gas revenues and amount	Annually	Annually
Gas Utilities (8)	6A	Received & Storage Withdrawals	Gas amounts by source company	Monthly	Quarterly
			Gas costs and amounts by source company	Annually	Annually
Gas Utilities(6)	7	End-use Consumption	SIC Code, rate code, # of accounts therms, revenue	Annually	Annually
Gas Producer/ Marketer (50)	10A	Gas Producer or Marketer End Use Sales	SIC Code, county, # of accounts therms, revenue	Annually	Annually
Electric Utility (17)	3	Fuel for Electric Generation	Amounts in storage, received, consumed, disposed	Monthly	Quarterly

### 2. How is QFER Data Used to Analyze California's Natural Gas System?

QFER is currently and is expected to remain a critical source of data to support natural gas market analyses at the CEC. Staff presently utilizes natural gas data from QFER Forms 3, 6, 6A, 7, and 10A as inputs to several models enabling Staff to generate projections of natural gas supplies, prices, and consumption. The data also support the CEC's role in the development of data reported in the utilities' *California Gas Report*. A detailed discussion of how QFER fills these needs follows. The discussion addresses the use of QFER data in (1) analysis of natural gas demand, (2) assessing natural gas supply needs and (3) preparing the California Gas Report.



a. Natural Gas Demand

Data on the throughput needed to satisfy historical California natural gas demand is required in the CEC various end-use demand models. It is also used to set the baseline conditions in the North American Regional Gas (NARG) model. Specific information is needed for three natural gas utilities (PG&E, SoCalGas, and SDG&E), thermally enhanced oil recovery (EOR) in Kern County, and other non-utility demand. For supply and price forecasting, the utility demand is aggregated into core and noncore demand, and includes the several municipalities that lie within their service areas. Staff requirements include the level of natural gas provided to EOR steaming and cogeneration from PG&E, SoCalGas, direct deliveries from California producers, and deliveries from the two interstate pipelines.

While the *California Gas Report* is the principal source of information for utility sectoral deliveries, information from QFER 6 is needed to help provide the core/noncore aggregations. Data collected under the Petroleum Industry Information Reporting Act (PIIRA) provides EOR total steaming needs and the California Division of Oil and Gas's Annual Report is used to estimate the quantity of natural gas used for EOR cogeneration. From QFER Form 10A, Staff obtains the quantity of natural gas delivered to end-users by non-utility pipelines, including EOR and other industrial, commercial and power generation sectors.

The US EIA Form 176 provides historical natural gas use similar to that found in QFER Form 6 for utility reporting. End-use deliveries are classified as firm and interruptible, generally consistent with the core and noncore designations found in QFER. While US EIA Form 176 provides more disaggregation to core transportation than QFER Form 6, it does not provide specific information on direct deliveries by interstate pipelines or California producers to EOR customers. This is an important shortfall, as this represents a significant use of natural gas in California and may result in understated historical consumption in the state.

b. Natural Gas Supply

To run the NARG model, Staff uses historical throughput data for each of the interstate pipelines delivering natural gas to California or intrastate producers/transporters within the State. Pipeline deliveries to the utilities are compiled from QFER Form 6A and the *California Gas Report*. QFER Form 6A provides detailed information from natural gas distribution companies and municipalities about where they received the natural gas supply enters their systems. This includes natural gas supply from each pipeline, utility and onshore and offshore production.

As shown on the demand side of the equation, the use of US EIA Form 176 provides only part of the data needed to perform CEC natural gas market analyses. US EIA-176 is a single form used to obtain information from interstate and intrastate pipelines, distributors, producers and natural gas processors. QFER forms, by comparison, were developed to provide information for various segments of the industry. For example, QFER Forms 6 and 6A are prepared by investor-owned

and municipalities that distribute natural gas. QFER 6A provides information from the three interstate pipelines operating in California directly delivering gas to customers in California, and producers (called marketers) that also make direct deliveries to customers without utilizing a utility system.

While both the US EIA and QFER forms provide revenue from sales, only QFER Form 6 provides revenue from intrastate transportation. This is used to derive intrastate transportation revenue information, data essential to estimate the delivered price to end-users that only transport natural gas on a utility system. It should be noted that during 1995, US EIA Staff performed an extensive review of its data reporting forms. Included in that review was a proposal to include transport revenues in the form. This change was apparently adopted although it is unclear exactly what will be included in future US EIA reports.

**c. *California Gas Report***

Each year, California's primary gas and electric utilities are required to prepare an annual report detailing historical and future estimates of natural gas supply and demand. The document is publicly available and used extensively by market participants, regulators, and consultants in assessing the California natural gas market.

To enhance the value of the document, the report was expanded in 1995 to include a "Statewide Sources and Disposition Summary," linking end-use consumption with the pipelines used to deliver the gas. QFER is a critical part of the data sources needed to complete this section. It is the only source of information available in the state that provides information about the amount of natural gas delivered to non-utility suppliers. Given that 19 percent of California natural gas deliveries do not use the utility distribution network, the absence of QFER would seriously understate the true natural gas consumption picture in the state.

**C. The Electricity Supply and Transmission System**

As mentioned previously, Staff anticipates separate workshops and public input to discuss generation and transmission-related data and information-related issues.

In general, QFER supply data support two broad categories of electricity applications: (1) integrated supply/demand balances, and (2) specific examination of generation technology and fuel diversity. The first of these draw upon electricity demand data and analyses as one part of a complex set of inputs that describe electricity demand, supply and their balancing. Much of this assessment takes place in a forecast setting, where both historic data and expected changes are relevant. These activities will be reviewed more fully under a future phase of this proceeding.

Here, Staff briefly describes data currently collected through QFER. This data describes elements of the current electricity supply and transmission systems, along with a summary of its

primary uses. A full discussion of and Staff recommendations regarding current or expected uses of supply and transmission-related data is not provided in this paper.

QFER Forms 1, 2, 2a, 3, 11, and 12 provide monthly data on:

- the mix of technologies currently used by each utility,
- the sale and exchange of electricity (interutility transactions) among utilities that have end use sales in California,
- power purchased from independent power producers,
- fuel used for electric generation in California,
- energy, capacity and fuels used to generate electricity from non-utility owned facilities larger than 10 Mw.

Data from these QFER forms are used primarily to develop statewide tables depicting historical trends in generation by utilities and non-utilities, as well as the kinds of fuels or technologies used in generating electricity for California use. The data have been used to calibrate generation system simulation models in backcasting studies, in combination with historic data on electricity consumption. Such information is used by other offices within the CEC and by outside entities to assess the implementation of energy policies, such as fuel and technology diversity, fostering of renewable generation, etc. Statewide, annual summary tables are made available to the Legislature, other agencies and the general public through CEC publications and, more recently, the Internet.

#### **D. Conclusion**

Since 1976 QFER has collected data on: 1) end-use consumption of electricity and gas, and 2) the natural gas supply and distribution system in California. The chronological record represented in the QFER database is unique in its extensive coverage of customer types and time period. Demand is growing for QFER's end use data on energy consumption, especially by consultants and private companies. A range of traditional applications has developed for historic energy consumption data, of which QFER is the major source. Staff believes many of these, as well as new ones, will continue to require data in the future as described in Section III of this paper.

### **III. Post-Restructuring Uses of Energy Consumption and Related Data at the CEC**

Section III discusses the many areas and functions that will make use of energy consumption data in the context of a restructured energy market. Some of these functional areas are in the traditional scope of CEC analysis and will evolve in response to restructuring. Other areas are new—driven by the increased information needs caused by industry restructuring.

#### **A. Analyzing Historic Energy Consumption Trends**

Electric industry restructuring will increase the need for analysis of historic energy consumption trends. Information of energy usage by customer sector, end use, and load profiles will be provided by the CEC to all market participants, ensuring that this information is equally available to all and that unequal access to information does not hinder the development of a fully competitive market.<sup>7</sup>

Analysis of historic energy trends will continue to be based on two types of indicators: factual and analytical. Factual indicators will provide market participants with a description of energy use. Analytical indicators will provide an explanation of the energy consumption situation.

Energy consumption data collected by QFER is the primary source of factual indicators. Information on trends in consumption by various customer groups and various types of geographies are just examples of this type of analysis.

Combining QFER consumption and price data with economic and demographic series will allow for the development of analytical indicators, such as whether growth in consumption is due to growth in the number of consuming units or in the intensity of energy consumption. The answer makes a difference for energy policy, which can directly impact only energy intensity changes.

#### **B. Projecting Mid and Long Term Electrical and Natural Gas Energy Use**

Forecasting energy consumption and prices requires the collection of information necessary to perform statistical and forecasting activities and permit the analysis of the relationships between economic growth and consumption. Consumption forecasts both establish the basis for policy analysis and provide value for market participants. The CEC is uniquely positioned to provide to all private market participants electric and natural gas forecasts—based on a consistent set of

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<sup>7</sup> The CPUC provided initial policy direction concerning the related issue of access to customer information to facilitate development of the new energy services market. However, the August 15, 1997 workshop report filed with the CPUC proposes a very limited release of historic data. The QFER data supplied to the CEC may be the only comprehensive source of electricity consumption data.

assumptions—of the overall trend in energy use for the state, information on regional differences in growth, data on which sectors are growing the most, and hourly load patterns.

Forecasts of energy demand and price facilitate the development of efficient markets. They allow market participants to evaluate and accept risks associated with making long-term capital investments and entering into contracts. Particularly with the uncertainty associated with the restructuring of the energy industry, analysis of the sensitivity of the forecasts to various factors may be as important as forecasts of trends or expected values.

Although the future of the restructured electric industry is still unclear, many market participants will need outlooks concerning future energy trends. Power marketers and UDCs will need information on growth in total electricity market to develop marketing plans and to evaluate how well they are doing at reaching their targeted market share. Market share forecasts, by both UDCs and energy marketers, will be confidential and power marketers will be at a comparative disadvantage relative to UDCs in producing these forecasts. UDCs have existing Staff, models and data, from the old regulatory regime, that can be used for market forecasts.

The ISO clearly needs a multi-year electric demand forecast to fully assess reliability. The ISO may overestimate demand if it simply relies on the summation of each ISO participant's forecast. Competing electricity providers may double count future demand under the expectation of each serving the same load or loads. In addition to double counting, individual forecasts are likely to be based on different and inconsistent key assumptions regarding economic or population growth. Market participants will, also, have unequal resources to expend on forecasting, resulting in forecasts of widely differing quality. Finally, private forecasts are likely to represent the self-interest of the firm rather than an objective, unbiased assessment on future market conditions. To overcome these problems, the ISO can benefit from a CEC developed demand forecast for reliability assessment. The CEC is currently in discussion with the ISO on this and other aspects of mid- to long-term electricity reliability.

The WSCC is responsible for reliability in the western U.S. and, for the same reasons as for the ISO, should use an unbiased, consistent forecast for the state of California in its work.

Market adjustments can occur more rapidly based on good market information about current and future demand and current and future prices. Market participants, elected officials, and policy makers all need timely and objective information. By developing forecasts of demand consistent with the lead-time to develop new generation, the CEC will be able to track the time path of the market signal—electric price. Rapidly rising prices, or volatile prices create intense public concern to which elected officials and policy makers must respond with information and action.

Information on future trends in end-use contributions to electric demand will provide information on the potential for energy efficiency and market transformation programs—for use by the California Board for Energy Efficiency (CBEE) and energy service companies. This baseline description will provide a basis for the market assessment function needed to determine if the

energy efficiency market has been transformed by the end of 2002. Data on the success or failure of these programs will be important to support a legislative decision to eliminate, reduce, or continue public purpose funding program funding beyond the initial four-year period.

Energy demand forecasts are an essential input into supply and reliability assessments. Sections C and D discuss electrical and natural gas supply assessments, respectively.

### **C. Projecting Mid and Long-term Electricity Market Activity**

Electricity and natural gas demand data are required as key inputs to analyses of the changing electricity industry. Many public policy issues are raised by the ongoing efforts to restructure and deregulate the electricity industry. The actions of many electricity market participants and stakeholders will be affected by the quality and the quantity of information available about the emerging market and regulatory mechanisms. Government, market participants and other stakeholders are all potential beneficiaries of an increased access to information. Estimates of energy and ancillary services market clearing prices, magnitude of spinning reserve payments, and electricity prices to consumers can be made by computer simulations of the emerging market. Such simulations can also estimate the effects of divestiture, retirements and new entrants on market power, air pollutant emissions, and system reliability. In addition, the simulations can be used to evaluate the viability of new entrants, relative merits of conventional and alternative generation technologies, demand-side management and distributed generation options, and the regional competitiveness of resources.

Traditional computer simulation modeling of the electricity industry focused on simulating economic commitment and dispatch of resources within one utility franchise area at a time, avoiding the need to simulate inter-area transmission system operations. Modeling the emerging energy market demands changes to this traditional approach. Modeling the energy market, which is really a Western States regional energy market, requires regional rather than service area simulation activities. Bidding behavior of market participants must be simulated rather than economic dispatch. Transmission system operation must now be included in the simulation activities because the overall “market” is actually the composite of interactions among separate geographic markets that are defined by transmission constraints.

Traditional modeling of the electricity industry required service area forecasts of annual energy requirements and annual peak demand. When these forecasts were disaggregated into hourly load patterns (largely based on historic usage data) they provided the demand input for system simulation models. Computer simulation models internally committed and dispatched various generation or supply resources to meet projected demand.

Modeling the western regional energy market requires both a demand forecast that encompasses a broad region’s end users of electricity and one that differentiates demand among transmission-constrained geographic areas. The rest of this section provides a detailed description of the level

of disaggregation that appears to be needed in the demand forecast for electricity market simulation for the UPLAN model. The CEC has been exploring a new version of the longstanding UPLAN model as better suited to the system assessment function described in CEC's 1997 Strategic Plan.

- Aggregates demand in California for the ten demand nodes listed below:

*PG&E Northern California:* Includes Lassen MUD, PG&E, Port of Oakland, Shasta PUD, Shelter Cove, Tuolumne CPPA, Truckee Donner PUD, CVP.

*San Francisco:* San Francisco loads.

*Humboldt:* Humboldt Co. loads.

*Northern California:* Includes loads for Redding, MID, TID, NCPA, Santa Clara and adjustments for loads served by others.

*SMUD:* SMUD loads.

*PG&E Southern California Loads:* PG&E loads assigned to zone 4 (Roughly the area south of Tesla and north of Midway).

*SCE:* SCE loads.

*SDG&E:* SDG&E loads.

*Southern California:* Loads for BGP, IID and credits for miscellaneous loads.

*LADWP & CDWR:* Loads for LADWP and CDWR.

- Out-of-State areas that are modeled in UPLAN are the following:

*Southern Nevada:* Loads for So. Nevada (Equivalent to Area IV of the WSCC adjusted for Ca. Service Territory Loads.)

*Arizona & New Mexico:* Loads for Arizona and New Mexico (Equivalent to Area III of the WSCC.)

*Rocky Mountain Power Pool:* Area II of the WSCC.

*Western Canada and Mexico:* These two areas have been represented in UPLAN only in terms of their net surplus resources available for sale and export to the U.S.

The above data includes annual peak (MWs) and sales (GWhs) at the distribution level. That is, they are customer level loads grossed up to account only for distribution losses. Transmission losses are determined by the model's power flow analysis. The UPLAN model can operate in either a mode utilizing monthly load shapes or in a mode utilizing annual chronological data. In both these load shape representations, each hour's load is defined as a fraction of the monthly peak load, and the monthly peak load as a fraction of the annual peak load.

Typically, the chronological load data used in the model for defining the load shapes has been a somewhat complicated averaging of five years historical data. The use of a single year's of data may not be appropriate for future years in that extraordinary events (extreme temperature fluctuations, or a widespread outage) may distort the expected load pattern. The UPLAN model can convert EEI chronological hourly data into a UPLAN input format.

Demand elasticity can also be represented in the model by entering in demand-side bidding. The demand bids represent customer's willingness to shed load when the market clearing price reaches a certain level. Demand bid prices can be defined for up to five blocks specified in MWs and prices in \$/MWh. These bids can vary monthly with an annual escalation rate. There can only be one demand elasticity file for each demand area (node).

This description of new demand forecast requirements exemplifies how traditional supply-side analyses should shift in response to electricity industry restructuring and the new, more complex regional analyses that will be required to be able to understand and evaluate market operations.

#### **D. Projecting Mid and Long-term Natural Gas Prices and Supplies**

Pursuant to the development of the biennial *Fuels Report*, the CEC undertakes several analytic activities for the benefit of the natural gas industry, its consumers, and the public. Section II.B described these in greater detail. The CEC fully expects to continue analyzing natural gas issues in a post-restructured electricity environment. Forecasted consumption data remains a critical piece to generating the sources of supply available to the California market, the price of natural gas at the California border, the cost of delivering the gas to the various end-use sectors, and the more complex fuel substitution competition expected to take place.

Forecasted natural gas consumption data is needed to determine how much gas supply will be needed in the future to meet the State's needs. The cost to produce and deliver the supply to California varies as the demand for natural gas changes. Generally speaking, the higher the demand for natural gas, the higher the price will be at the California border. The mix of supplies from various producing regions is also affected by the level of demand. As demand grows, the marginal supply of gas is selected by NARG, raising the overall price for natural gas supplies at the California border.



Determining the cost associated with delivering gas from the California border to the burner tip requires a methodology for allocating the costs across the various customer classes. The allocation of these costs are based on the forecasted demand for each customer group. Generally, the per unit cost of serving a customer is inversely proportional to the level of supply needed. Thus, individual residences require higher the per unit costs, whereas power plants pay lower per unit cost for utility service.

#### **E. Estimating Past and Future Environmental Impacts of Energy Use**

Energy combustion is a fundamental source of air pollution. NO<sub>x</sub>, ozone, and fine particulates are pollutants derived from the combustion of fuels. To ensure that energy policy accounts for environmental impacts, policy makers require information and analysis on the effect of energy demand on air quality.

Over the past decade, the CEC has worked with the California Air Resources Board and some regional air quality management districts to improve emission inventory techniques and to use consumption data to quantify energy-related air pollutant emissions. The CEC provides data on natural gas use to CARB and air pollution control districts (such as the San Joaquin Unified and San Luis Obispo Air Pollution Control Districts) to estimate emissions from natural gas combustion by residential and smaller commercial and industrial sources. Detailed data about natural gas use by customer type allows accurate estimates of emissions for different source types. This information is crucial for air quality managers to develop accurate emission inventories and to identify the best strategies for reducing air emissions. While individual air districts make emissions projections as part of their planning process, they do not have the energy expertise, resources, or focus, to collect this data or to conduct more detailed analysis of energy trends and alternative policies. An important illustration of this occurs for electric generating facilities that are sited and operated for the benefit of a more broader regional constituency than the residents of a particular Air Quality Management District (AQMD). The CEC has assisted CARB and AQMD Staffs to understand likely trends in generating facilities using CEC's electricity assessment capabilities.

To accurately project emissions from electricity use to assist these agencies, CEC Staff will require information about trends in both electricity generation and electricity demand by customer class. This baseline description of emissions from energy use is necessary information for analysis of the air quality impacts of restructuring, and other air quality management/energy policy changes, discussed in the next section. To the extent that federal and state policies to address global climate change are promulgated, carbon emissions to the atmosphere and directly linked to fossil fuel consumption. Thus, this particular aspect of environmental analysis is inextricably tied to energy consumption analyses.

## **F. Assessing Current and Proposed Energy and Environmental Policies**

To support both public and private decision-making that adequately considers the broader economic and environmental effects of alternative choices, energy market participants and policy makers will benefit from analysis of the interaction of air quality management programs and energy markets and policies.

Forecasts of baseline emission credit prices for use in energy system characterization and analysis to support informed business expansion and location decisions rely on energy use data by industry category (3- or 4-digit SIC) to accurately estimate emission credit supply and demand. While the CARB statewide emission inventory provides some natural gas and distillate use data, a more complete picture of energy use across all energy types is needed to understand, for example, trends in electricity versus fuel use – a potentially significant factor for emission credit markets as well as energy policy.

Energy consumption data, energy price forecasts, and the emission credit price forecasts are key inputs for quantification of energy impacts of recently implemented air quality control strategies with significant energy impacts, to adjust estimates of baseline energy demand. These data are also used for analysis of the interactive effects of recent or proposed changes in air quality management strategies and energy markets, including energy, economic, and environmental benefits of new credit rules such as those being implemented in the South Coast Air Quality Management District.

## **G. Monitoring the Performance of Retail Energy Markets**

The primary goal of electricity restructuring is to provide the framework for the development of a competitive, well-functioning market for the provision of energy services to customers. Monitoring and taking appropriate actions to encourage the development of this market is a key function of the CEC, as stated in its recently adopted Strategic Plan.

### **1. Purpose of Activity**

Monitoring the performance of retail energy markets will help the CEC determine whether problems arise that need governmental action. Conversely, this monitoring activity will help government in understanding temporary or transitional problems that can and should be corrected by market forces without government intervention.

Staff has recently begun to research the subject of market performance indicators, especially specific analysis of retail energy markets. The analysis indicates the following key indicators of performance in these markets:

- a. Degree of Retail Choice. The level of consumer choice can be determined by an assessment of the number of meaningful choices presented to customers. This includes choices of rates, schedules, reliability conditions, metering and associated data services, etc;
- b. Geographic and Economic Sector-Defined Retail Energy Commodity Prices and their Trends. Retail prices of energy commodities and their trends should provide an indication of whether competitive forces are helping to deliver these commodity services at the lowest prices. It is important that commodity prices not be mingled with other costs paid by customers for the provision of services related to the delivery of energy to their premises. In capturing commodity prices, what should be of interest to market monitoring is the combined prices of generation, transmission and distribution of energy to specific locations and customer types.
- c. Degree of Retail Competition. Tracking trends in the number of retailers, their market share, concentration, and entry and exit patterns can help Staff assess the degree of retail competition. These parameters must be tracked at the finest geographic and economic sector levels of detail in order to understand whether geographically determined transmission and distribution constraints are barriers to full market competition.
- d. Degree of Innovation. Are retailers using technological and other innovative approaches in the provision of meaningful consumer choice? What are the trends in the delivery of these innovative services? How are they providing for an enhancement of consumer choice? What are the trends in the delivery of energy efficiency products and services?
- e. Degree of Customer Satisfaction. Are customers satisfied with the choices, terms, delivery of service, expected reliability, etc.? Do they have the information necessary to make informed choices?

Staff proposes that the CEC continue researching market performance indicators and develop better understanding of the roles of government and private industry in monitoring these indicators. This further research will lead to additional recommendations for energy consumption (and other data forms) needed for this activity.

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## 2. Development of Market Performance Indicators Requiring Access to Energy Consumption Data

Staff's initial review of these potential market-monitoring activities indicates that government can effectively and naturally perform monitoring the following market performance indicators:

a. *Monitoring of average commodity retail prices and their trends by county or ZIP code, four digit SIC or its equivalent level of economic disaggregation, and rate category (e.g., flat rate schedules, time-of-use rates, etc.).* Trends in this indicator need to be monitored monthly during the initial years of the transition to a competitive market. Eventually, as the competitive market matures, less frequency will be required; and

b. *Monitoring of the shares of the retail market place and their trends by county or ZIP code and four digit SIC code or an equivalent level of economic disaggregation.* Trends in this indicator can initially be monitored monthly during the transition years. Less frequency will be required as the market matures.

## **H. Developing and Understanding Changing Energy Usage Patterns as a Result of Restructuring**

This analysis will explore what changes are occurring to energy use patterns as a result a restructuring. Changes in energy use patterns will be affected by how customers exercise their choices under restructuring. Two major choices facing customers are 1) the choice of how service is provided to them and 2) how they view that service.

Customers are being given a wide range of options about how they receive service. A customer can remain with a UDC or choose an ESP. In addition, customers will have the choice of choosing to be direct access or virtual direct access customers. ESP and virtual direct access will expose customers to unprecedented options for non-tariffed electric energy pricing. Choices made by customers will possibly change their hourly and possibly annual usage levels and patterns. Analysis of the number of customers choosing different service options, when combined with individual customer usage changes will provide information on total load changes faced by the ISO.

Customers are also able to choose whether the electricity they receive is viewed as a commodity or as an energy service. Increased perception of electricity as a commodity could lead to growth in consumption. The more customers view electricity as an energy service the more likely the penetration of energy efficiency programs and the bundling of non-energy services by energy service providers. Developing an understanding of emerging consumer behavior is a necessary input into evaluating a wide range of restructured market results.

## **I. Targeting and Evaluation of Public Purpose Energy Programs**

The principles driving publicly funded energy efficiency and conservation programs have evolved to a paradigm in which market research and program evaluation will be integral and ongoing components; detailed, accurate, and timely energy use data will be crucial for program success.

Both the CEC and the CBEE will be seeking to improve energy efficiency through public purpose programs that permanently reduce or eliminate market barriers to efficient energy markets, thus allowing government intervention to be only temporary. This “market transformation” strategy is a major change from previous programs, in which the goal was, for example, to increase use of a specific technology, or to avoid additional resource investment. In this old model, evaluation was only done after implementation and typically focused on easy to quantify first-year impacts. Those implementing the market transformation approach will benefit from detailed energy market data as they research, design, and evaluate new programs. In addition to supporting the Energy Efficiency Division’s programs, market data will be valuable for external efforts, such as those overseen by the CBEE.

1. Market Research

Program developers may conceive of many potentially attractive targets for market transformation programs. To identify the most fruitful opportunities, the CEC and CBEE need to know the size, scope, and energy use characteristics of the market at hand. As markets and consumers respond to the new electricity market, government and market participants need to monitor trends at the customer level, both to identify opportunities for sustainable market changes and to know when intervention is not warranted. Customer-level data can provide needed insights for market segmentation and survey development as part of the market research process.

2. Program Design

Good programs will be designed based on specific theories about how change will be effected; program designers will need data to test whether their theories are consistent with observed behavior. Energy consumption data will allow program designers to verify their assumptions about how markets are currently functioning and how market participants are making choices.

3. Evaluation

While program evaluators will likely require many types of information, accurate data on customer energy use will provide the foundation for understanding and monitoring energy markets and the effects of public goods programs.

**J. Verifying Credit Claims for Public Purpose Renewables Credit Program**

Information on end-use consumption of electricity is needed by the CEC for purposes of carrying out the customer credit program — a subcomponent of the renewables program established through proposed Senate Bill 90.

The customer credit program will allow consumers to earn “credits,” or rebates, when they purchase electricity that comes from a renewable resource. AB 1890 required for the CEC to

design programs that will “allow customers to receive a rebate from the fund through mechanisms such as a reduction in their electricity bill or a direct payment from the fund for the transition charges that will otherwise apply to their purchases from renewable resource providers.” The customer credit program is designed to respond to this portion of AB 1890 by reducing the cost premium that customers may pay for renewable energy and thus encourage customers to buy renewable power. This program is intended to help build a green market infrastructure during the transition period (when CTC payments may affect choice of alternate providers), going beyond helping renewables to become competitive with conventional generation technologies to also facilitate consumer choice of renewable power.

The program will award credits for customer purchases of certified renewable power, provided that the power is traceable by contractual entitlement back to the original generator (e.g., certified renewable power purchased through the direct access market). Retail providers of electricity will report to the CEC on the amount of qualifying energy they’ve sold to consumers on a monthly basis, and the CEC will issue payments back to the retail supplier, who must pass the rebate on to the customer.

In order to ensure that retail suppliers are truthful and that the numbers are accurate, the CEC must have the ability to verify the energy reported as sold by each participating retail provider. Also necessary will be the ability to verify how much qualifying energy was purchased by each customer, to ensure that each customer is receiving his or her fair share of the customer credit.

## **K. Providing Information to Market Players and Energy Users**

A new function for the CEC is to play an active role in facilitating meaningful choice in energy markets. Staff is currently assessing how various information delivery activities can meet certain market needs.

### **1. Aggregate Consumption**

The currently adopted CEC Strategic Plan states that the CEC will “collect targeted data and provide policy makers, consumers and other market participants with useful, objective information and analyses based on that data.” Provision of non-confidential, aggregate information on energy consumption by the various sectors of the economy will be one of the pieces of targeted data that the CEC will provide to policy makers, consumers, and market participants.

Aside from providing this type of information to similar audiences, as in the pre restructuring case (see Section II.B describing aggregated energy consumption data requests), the CEC might also offer to provide aggregations of this information to other federal and governmental agencies that need it and thus reduce reporting burden on utilities or their meter and data management agents.

Additionally, the CEC will seek to enhance its ability in providing aggregated information by creating non-confidential energy consumption data aggregates and having them available for querying and/or downloading in its Web site.

## 2. Disaggregate Assessments

As it was the case before restructuring, the CEC will conduct on-demand, specialized retail energy market assessments for the Governor, Legislature, other governmental bodies and public entities (such as schools and local governments) which will require the use of confidential energy consumption data. These assessments will include the provision of informational support to cash-strapped government entities to help them make informed choices in the restructured market. For example, the CEC might perform assessments for public school districts that will help them understand their possibility of aggregating their load and participating in the direct access electricity market.

Many types of assessments of potential policy initiatives will be performed for the Governor and Legislature; these are likely to include analyses of the potential economic impacts of various energy rate structures on various sectors of the economy, including public organizations. All of these analyses will require access to disaggregated confidential energy consumption data.

### **L. Staff's Understanding of CEC Commitments as a Result of the Strategic Plan**

Beginning in early 1997, the CEC undertook a review of its activities as part of a comprehensive strategic planning process. During the course of winter and spring 1997, the CEC used internal processes and a series of external focus groups to gather information about its activities and their relevance to the current circumstances in which California exists. A draft Strategic Plan was authored in May 1997 and CEC hearings to receive comment on this draft resulted in some modifications. A revised Strategic Plan was developed and submitted to the Governor's office for review in accordance with instructions for all administrative agencies of state government. In July 1997, the Governor approved the CEC's proposed Strategic Plan.

The eleven functional activities described above are all contained within the Strategic Plan, either as a basic role of the CEC, one of the goals for a CEC role, or an implementation strategy. The CEC Staff understands that the Governor's adoption of the Strategic Plan solidifies the CEC's intent to perform these roles, goals, or strategies. The Strategic Planning Committee of the CEC is now reviewing various detailed issues concerning implementation of the Strategic Plan. Therefore, Staff believes that this OIR/OIIP ought to develop appropriate details concerning the data collection necessary to support these eleven activities, which can serve both as refinement of

the Strategic Plan as well as provide direct input into the regulation revisions that may emerge from this OIR/OIIP.



## **IV. Energy Consumption and Related Data Needs (Post-Restructuring)**

This section describes the energy consumption and related data needed to appropriately perform the functional activities described in Section III. Emphasis is placed on categorically describing the type and level of detail of required data and indicating whether that category of data has been collected in the past, or is a new or changed need. The section also describes energy consumption and related data previously collected under QFER regulations but no longer needed anymore given the changes taken place in the industry.

### **A. Translating Functional Activities into Energy Consumption Data Requirements**

Section III described a lengthy series of CEC functional activities that require various kinds of energy consumption data (and other data in some instances). There are fewer categories of basic data than the number of applications that could be devised to make use of the data. In fact, Staff believes the following five kinds of energy consumption data are sufficient to support the above activities:

- Monthly electricity and natural gas sales, revenue, and number of customers classified by economic activity codes, rate schedules, and locations for each energy service provider (including municipal utilities);
- Monthly electricity consumption of self-generated energy for each non-utility generator above 1 megawatt;
- Monthly natural gas consumption of self-produced gas for each producer greater than 10 million cubic feet per month;
- Hourly load profiles for the system, and by customer class, for the year by each utility distribution system; and
- A comprehensive customer file with billing period detail for a year for each energy service provider.

The remainder of this section discusses each of these five categories of end-use consumption data and how they are required to meet one or more of the functional activities described in Section III.

## **B. Description of Necessary Data**

### **1. Monthly Electricity and Natural Gas Sales, Revenue, and Number of Customers Classified by Economic Activity Codes, Rate Schedules and Locations for Each Energy Service Provider (including municipal utilities)**

Reporting of data at this level of detail will allow the CEC to perform the following functional activities, which were described in detail in the previous section:

- Analyze historic energy consumption trends;
- Project mid and long term electrical and natural gas energy use;
- Project mid and long term electricity market activity;
- Project mid and long term natural gas prices and supplies;
- Estimate past and future environmental impacts of energy use;
- Assess current and proposed energy and environmental policies;
- Monitor the performance of retail energy markets;
- Develop an understanding of changing energy usage patterns as a result of restructuring;
- Target public purpose energy programs; and
- Provide aggregate information and analyses to market players and energy users.

Currently, the CEC collects most of the elements included in this data category from electric and natural gas utilities and gas marketers. Various elements of data are currently collected in QFER Forms 4, 5, 6, 7, and 10A. The forms are distinct in their format but often require an unnecessary submittal of aggregate data that CEC Staff can easily compute based on disaggregated information that is also reported. Additionally, natural gas and electricity reporting are treated differentially.

In the future, Staff proposes that this category of data be reported to the CEC in one common form, which will include elements from the different QFER forms mentioned in the previous paragraph. This universal form will be used by all energy service providers and municipal utilities to report their energy sales. This new form will be devised to allow for paper reporting by small providers, but in general CEC Staff will encourage electronic reporting of this information using an agreed-upon database format to be developed with the input of the reporting parties.

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## 2. Monthly Electricity Consumption of Self-generated Energy for Each Non-Utility Generator Above 1 Megawatt

Reporting of this data will allow the CEC to complete its understanding of the electricity consumption picture created by access to the data that was described in Section IV.B.1. Specifically, the following functional activities, described in Section III, are supported by access to this data:

- Analyze historic energy consumption trends;
- Project mid and long term electrical energy use;
- Project mid and long term electricity market activity;
- Estimate past and future environmental impacts of electricity use;
- Assess current and proposed electricity and environmental policies;
- Monitor the performance of retail electricity markets;
- Develop an understanding of changing energy usage patterns as a result of restructuring;
- Target public purpose energy programs; and
- Provide aggregate information and analyses to market players and energy users.

Currently, QFER Form 11 (non-utility use of generated electricity) provides an annual report of monthly electric generation and peak production for non-utility owned generation facilities of at least 10 megawatts capacity not providing all of their generated electricity to an electric utility. This means that at least some of the generation at the facility is used on site or sold to another non-power marketer. This information is needed to account for a significant portion of California electrical consumption, particularly in segments of the industrial sector, and is essential in order to form a complete outlook of the how electricity is used in the region.

Portions of data required on QFER Form 11 are also collected by the US EIA on the Annual Non-utility Power Producer Report (Form EIA-867). The data collected by US EIA is superior in some aspects to the QFER data since: 1) it covers non-utility owned generation facilities of at least 1 megawatt capacity as opposed to 10 megawatt, thus offering finer precision; and 2) US EIA can fine producers for non-reporting, improving the reporting compliance rate. However, the data provided in the US EIA form is only on an annual level so that no variations in seasonal consumption and production can be seen. The US EIA form is also less specific in the SIC definition of type of facility which is using the electricity. QFER requires a 4-digit SIC

designation of the facility while US EIA requires only a 2-digit designation in most cases. This difference is most significant in SIC 20 (food processing) and SIC 49 (electric, gas, and sanitary services). The US EIA form also does not require a SIC designation for the use of electricity which is sold “over the fence” to another non-power marketer business or industry, which is included on QFER Form 11.

Currently, data provided on Form US EIA-867 and QFER Form 11 are considered confidential and not available to outside parties. Thus there would be a need to create a satisfactory MOU to allow the CEC and US EIA to share this information. It would be useful for both agencies to be able use the combined information to check for reporting consistency and to provide a more comprehensive understanding of electricity supply and demand in the western region.

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3. Monthly Natural Gas Consumption of Self-produced Gas for Each Producer Above 10 Million Cubic Feet per Month

Collecting data about consumption of natural gas produced and consumed on-site will clearly support the forecasting and environmental-related policy analyses described in Section III. This information is needed to provide a complete picture of California natural gas consumption, combined with data needs described in Section IV.B.1.

PIIRA reporting presently provides the CEC with a portion of statewide self-production/consumption data, specifically steaming required for EOR operations. Staff estimates the quantity of natural gas used for EOR cogeneration using the California Division of Oil and Gas’s Annual Report. Beyond the internal use of aggregated PIIRA data by Staff, available data on natural gas use on-site is limited at best. No agency in California collects this data for other producers although a statewide estimate is reported in US EIA Form 895 - Monthly Quantity and Value of Natural Gas Report. US EIA representatives explained that the estimate is generated from a confidential survey, US EIA Form 23 - Survey of Producers. Thus, all information on natural gas consumed on-site that is available to the CEC is considered confidential.

Given the confidential nature of PIIRA and the US EIA producer survey data, three realistic options are available to the CEC. First, the CEC could take steps to relax the confidential status of only the natural gas steaming portion that EOR producers report under PIIRA. This option, however, would apply to only the EOR portion of the self-production/consumption market. Option two entails creating a satisfactory MOU to allow both agencies to share this information. Option three calls for the CEC to establish a new reporting requirement requiring all self production/consumption above 10 million cubic feet per month directly to an end-use customer. The 10 million cubic feet threshold is consistent with the definition of a gas marketer as defined in present QFER rules.

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4. Hourly Load Profiles for the System, and by Customer Class, for the Year by Each Utility Distribution System

Reporting of load profile data at this level of detail will allow the CEC to perform the following functional activities, which were described in detail in Section III:

- Project mid and long term peak electrical energy use;
- Project mid and long term electricity market activity;
- Estimate past and future environmental impacts of electricity use;
- Assess current and proposed electricity and environmental policies;
- Develop an understanding of changing energy usage patterns as a result of restructuring;
- Target public purpose energy programs; and
- Provide aggregate information and analyses to market players and energy users.

The CEC currently collects three types of load data. The investor-owned utilities (PG&E, SCE, and SDG&E) have been providing annual hourly loads at both the system and the customer class level. The system loads are for each of the 8,760 hours in a year, while the customer class data are provided in three classifications: typical weekday, typical weekend, and peak day, for each month of the year. The system and customer class load data are used to calibrate the peak energy demand forecasts at the sector level and in determining coincident peak.

In the future, the CEC will need to obtain 8,760-hour load profiles for complete energy distribution systems and each customer class within each distribution system. In the past, system load data was obtained from the utilities as part of the CEC's Common Forecasting Methodology CFM) proceedings. Customer class load profiles were obtained as part of Title 20 regulatory requirements related to utility data collection and analysis plans. For the future, Staff proposes that these two requirements be codified as part of the revised QFER requirements under Title 20, Section 1301 et. seq.

To efficiently perform its forecasting and public purpose program targeting and evaluation activities, the CEC and the newly-created California Board for Energy Efficiency (CBEE) need more detailed load research data than what Staff proposes to be collected under revised QFER regulations. These more specific types of load metered data include end-use (e.g., air conditioning) load data as well as individual customer load profile information. CEC Staff proposes that this type of public purpose data not be collected through regulation but through research projects conducted jointly by the CEC and the CBEE.

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## 5. Annual Customer File Containing Twelve Months of Natural Gas and Electricity Sales for All Customers

In order to fulfill its roles in the restructured electricity market, the CEC will need a customer file containing 12 months of natural gas and electricity sales for all customers. The data will be primarily used to support the following functional activities, which were described in detail in Section III:

- Project mid and long term electrical and natural gas energy use (by allowing the CEC to design and executive customer energy surveys that provide data to perform this activity);
- Estimate past and future environmental impacts of energy use (by allowing the CEC to design and executive customer energy surveys that provide data to perform this activity);
- Assess current and proposed energy and environmental policies (by allowing the CEC to design and executive customer energy surveys that provide data to perform this activity);
- Target and evaluate public purpose energy programs (by allowing the CEC and the CBEE to assess customer-specific energy consumption that is tied with specific market transformation programs); and
- Verifying credit claims for the public purpose renewables credit program.

Ideally, to understand the underlying structure of energy usage and determine the effect of market transformation (MT) programs, a census of all energy-using consumers in the state could be conducted. However, this method of data collection is too costly and too time-consuming for most CEC endeavors. Therefore, the CEC expects to rely on survey data gathered from samples of the population for those portions of its data collection and analyses that require customer-specific data to understand how energy is used – features of factories, buildings, and end-use applications that support a structural understanding of usage.

There are a number of steps involved in designing surveys and MT studies and using samples to collect data for these. After first defining the objectives of a particular survey or market transformation study, the study designer must define the population about which information is desired and create a list of every unit that is of analytical interest in this population. The ideal list contains every unit in the target population with no duplication. Further, each unit is shown separately, information about the unit is accurate, and units not in the target population are not shown.

A comprehensive file containing 12 months of billing data for all energy-using customers comes closer than other available lists to meeting the criteria named above. Thus, for energy surveys and MT studies, samples drawn from billing files are more likely to be representative of the population than samples drawn from other lists. Comprehensive billing files will be easier to

compile than the alternatives, namely, attempting to merge other, commercially available lists into a universe of units in the targeted population. Furthermore, because a complete billing file will contain auxiliary information such as zip code, SIC code, and rate category, the population can be grouped into categories of interest, thereby improving the efficiency of the sampling. In addition, having each of the 12 months of billing data will allow for special survey and MT designs, for example, the utilization of relevant summer usage to design air conditioning MT studies. Finally, because surveys and MT studies can draw on customer billing information, the linkage of survey responses to energy usage already exists (an otherwise burdensome task). This linkage is necessary in order to estimate energy consumption for particular market segments and to relate energy usage to particular appliances, equipment, MT programs, and most crucial to weigh results of surveys into representative data for all energy users.

Another important CEC need that is covered with the availability of customer-specific energy consumption data is the need to make verifications of credit claims under CEC's public purpose renewables credit program. This activity was described in more detail in Section III.K.

Additionally, availability of customer billing data will allow the evaluation of other data obtained from third parties. Information from such data can be matched with information on the customer billing file in order to evaluate which groups are represented on the third party data file and how representative such data are. Since the CEC relies on external data for its analyses, such evaluations are important and can be facilitated by the comprehensive customer-billing file.

### **C. Energy Consumption and Data Reporting Requirements No Longer Justified**

The following historic energy consumption data and related QFER forms are no longer needed, in light of electric industry restructuring:

- One-year-ahead projected sales (part of QFER Form 4A)
- Electric Utility Annual Estimate of Self Generation (QFER Form 13)
- Gas Utility Annual Estimate of Gas for Self Generation (QFER Form 14)
- Electric Utility Annual List of Self Generating Facilities (QFER Form 15)
- Electric and Gas Utility Biennial SIC Code Accuracy (QFER Form 16)

#### **1. One-year-ahead projected sales (part of QFER Form 4A)**

QFER Form 4A requires, in part, that electric and gas utilities report a one year-ahead forecast of electric sales or natural gas deliveries that will be used to assess the nature and extent of any energy shortage.

Staff proposes that this requirement be eliminated. Under electric industry restructuring, responsibility for system reliability will shift from UDCs to the ISO. For this reason, UDCs should no longer be required to provide one-year ahead forecasts. In the future, the CEC will receive information related to electricity shortages and system reliability from Staff analysis of energy trends and from the ISO and WSCC.

In addition, natural gas utilities should not be required to report one-year ahead natural gas deliveries. The CEC receives information on gas supply and demand conditions by way of its membership in the California Gas Report working group.

2. Electric Utility Annual Estimate of Self Generation (QFER Form 13)

This form requires electric utilities to estimate the annual amount of electricity consumed on-site by generators of less than 10 MW.

This form is no longer needed. Previously submitted forms have provided estimates for existing self-generators. In the future, Staff will develop its own estimates based on data collected by the CEC and EIA.

3. Gas Utility Annual Estimate of Gas for Self-Generation (QFER Form 14)

This form requires gas utilities to estimate the annual amount of natural gas use as fuel for electric generation by generators of less than 10 MW.

Previously submitted forms have identified estimated the amount of gas. In the future, Staff will develop its own estimates based on data collected by the CEC and EIA.

4. Electric Utility Annual List of Self Generating Facilities (QFER Form 15)

This form requires electric utilities to identify all non-utility electric generators in their service area with at least 10 megawatts of installed capacity.

This form is no longer required. Previously submitted forms have identified existing self-generators. Future self-generation facilities will be identified using information gathered from the CEC's partnering with EIA and from electric utility industry publications.

5. Electric and Gas Utility Biennial SIC Code Accuracy (QFER Form 16)



The requirement for biennial SIC accuracy reports has been in place since 1990. In that time, analysis by utilities of whether customers are assigned the correct SIC code has improved the quality of the energy consumption data received from utilities.

Staff believes that restructuring will shift UDC's and energy service provider's focus from heterogeneous "rate classes" to more homogeneous SIC-type customer groups. This will increase the desire of UDCs and energy service providers to correctly classify customers. In addition, as the North American Industrial Classification System (NAICS) is implemented, Staff will work with UDCs and energy service providers to ensure that those new codes are correctly assigned to customers. As part of this work, Staff will partner with the Employment Development Department (EDD). EDD is responsible for providing employment data by SIC (and, in the future, NAICS) code. EDD checks the accuracy of an employer's code every three years. By working with EDD and electricity providers, Staff believes that reasonably accurate customer classifications can be developed and maintained.

For the reasons stated above, Staff believes that the current SIC accuracy reports are no longer needed, and that needs for accurate classification can be achieved in other ways.

## **V. Options for the CEC to Obtain Energy Consumption and Related Data (Post-Restructuring)**

The purpose of this section is to describe several options available to the CEC to obtain or gain access to the energy consumption and related data that was described in Section IV. The first part of this section deals specifically with energy consumption, revenues and number of customers data needed from retail energy providers. The second part deals with electricity consumption data from self-generators.

### **A. Obtaining and/or Accessing Data on Energy Sales, Revenues and Number of Customers**

#### **1. Data Reporting by UDCs and Municipal Utilities**

Under this option, all data on energy sales, revenues and number of customers, which is described in Section IV, will be reported to the CEC by the utility distribution companies (UDCs) and municipalities. This presumes that this information is available to the UDCs. Staff's current understanding of direct access implementation proposals indicates that the UDCs will have sales information (kWh, therms) and number of customers information for all service providers in their territory. It is unknown whether revenue information will be available to them. This is, however, a critical piece of information used to forecast retail prices and monitor the performance of the market. Hence the CEC may not be able to use this data collection option unless mechanisms are devised to allow revenue information (perhaps only in aggregate economic sector fashion) to be available to the UDCs for transmittal to the CEC

There are several benefits to collecting energy consumption data using this approach. These are:

- Reduction in the number of parties that have to supply data to the CEC. Since no energy service provider will have to provide data under this option, the number of suppliers of data will be reduced by as many as 100 or more.<sup>8</sup>
- Elimination of Reporting Burden for Small Energy Service Providers. Although CEC Staff does not have complete information on the size of all the companies that will venture into the retail market after January 1, 1998, it can be expected that some of these entities will be relatively small enterprises that could perhaps qualify for Small Business status. Under this option, reporting from these small firms will not be required.

The UDCs might argue that it is unfair for them to take on this additional responsibility. Additionally, they may argue about who should reimburse them for the cost associated with

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<sup>8</sup> As of the date of the preparation of this paper, there are approximately 100 energy services providers registered with the CPUC. The number of providers may increase or decrease depending on how the competitive electricity market evolves after January 1, 1998.

providing this information to the CEC. If this option is selected, Staff believes that UDCs should be able to use ratepayer funds to fulfill their reporting obligation.

## 2. Data Reporting by ESPs, and Municipal Utilities

Under this option, data on energy sales, revenues and number of customers is provided by each and every entity that markets energy to retail customers in the State. This includes energy service providers and municipal utilities

There are pros and cons in obtaining energy consumption data under this approach. A positive aspect of this approach is the fact that the entities directly responsible for energy sales will report to the CEC. This creates a true level playing field. The following are adverse characteristics of this approach:

- Adverse impact on Staff resources created by the need to implement a data collection activity where the number of reporters will grow by several fold.
- Problem in enforcing the requirements, since currently the CEC does not have mechanisms (such as penalties for late reporting) in place that encourage timely reporting.
- Potential impact on small businesses.

## 3. Data Reporting by Meter Data Management Agents and Municipal Utilities

Implementation proposals for direct access have developed the concept of a new market entity called a Meter Data Management Agent (MDMA). Those proposals call for each energy service provider to either act as a MDMA or hire the services of said agent. The rationale behind the MDMA requirement is the unbundling of revenue cycle services tied with the efficient access to and flow of metered data in the competitive market.

Staff's current assessment indicates that there will be a small number of MDMA's in the market. This implies that MDMA's will work for one or more energy service providers. It is also a fact that MDMA's will be entities with expertise in accessing, processing and delivering energy consumption information to market participants.

Staff believes that the MDMA's will be the best source to obtain energy consumption data in the future. This is because these entities will have expertise and information technology capabilities that will allow for the efficient collection and transmittal of energy consumption data

There are several advantages and relatively minor disadvantages in obtaining data using this approach. One advantage includes the flexibility of obtaining data with the level of detail and periodicity required by the changing needs and circumstances. Another is the significant reduction in reporting burden, as the CEC will be responsible for accessing the data it needs from

MDMA servers as opposed to relying on market players to provide it. The only disadvantage is the relative uncertainty about the speed at which the newly developing direct access market will implement the MDMA concept. Staff, with industry stakeholders, continues to work in this area which promises significant benefits to information access and flow.

## **B. Obtaining Non-Utility Data by MOU with US EIA**

In order to have a complete picture of energy consumption, the CEC needs data on energy sold by service providers as well as data on energy self-generated by non-utilities and either used internally or sold over the fence to other customers. This type of energy consumption information has been collected in the past by the CEC and to some degree also by the US EIA.

Staff is informally working with US EIA Staff on the possibility of obtaining this type of information from them in the future. For this to happen, the CEC must resolve the following issues:

- Sharing of Confidential Data by US EIA. Self-generation data collected by EIA under Form EIA-867 is submitted to the agency under very strict confidentiality provisions. Because of these provisions, US EIA has been unable to share this data in the past with other organizations that could benefit from access to this information. Staff is investigating if the development of a Memorandum of Understanding (MOU) with EIA could help address this barrier.
- Influencing US EIA to Modify its Current Data Collection Form to Address CEC's Needs. For the CEC to fully be able to use US EIA's self-generation data, it needs to be able to influence changes to their data collection Form that address the need for more detailed information of certain types. We would also need to influence a more frequent collection (monthly instead of annually) of this information. Currently the USEIA is undergoing a public review of all of its data collection forms for the electric power sector. Staff plans to use this opportunity to make recommendations on the necessary changes.

CEC's efforts to collect self-generation data in the past (through QFER) have not resulted in quality information being provided. This has been due to the fact that there are many self-generators in the State, insufficient CEC Staff resources to independently track potential providers, and no penalties associated with the lack of reporting. Lack of self-generator reported data was addressed in the past by requiring utilities to provide estimates of self-generation in their service areas. Clearly, help from the competitive industry along these lines in the future should not be expected. Also because of the large number of self-generators in the State, a reporting cutoff for facilities 10 MW or smaller was included in previous revisions of the QFER regulations.

At the federal level, even though the level of end-use detail and periodicity of collection is less stringent than CEC requirements, USEIA has been able to sustain a high level of reporting by utility self-generators 1 MW or bigger. Initial assessment of the reason for US EIA's success indicates that this might be due to the fact that a stronger enforcement mechanism, presumably based on penalties for non-reporting, is in place.

Because of all of the above, Staff recommends a concentrated effort towards working with US EIA as a source of self-generation information. The CEC, however, needs to have a fallback plan in place in case our efforts to work with the US EIA do not produce the desired results.

## **VI. Confidentiality Concerns**

This chapter discusses the tradeoffs between access to data and its classification as confidential. There are complex interactions between a public policy supporting access to data and confidentiality designations to maintain privacy or commercially significant trade secrets.

### **A. Access to Data**

There are two quite different levels of access to data. The first involves access of a representative of government and public interests that is privy to disaggregated data which may be sensitive in that form. The second involves access of market participants and the public to aggregated data that has been sufficiently masked to eliminate privacy or trade secret concerns. The issues before the CEC in this proceeding should not be framed as whether data that is asserted to be confidential is withheld from a representative of government and the public; rather, they should be framed as moving the line between what the representative is able to make available to market participants or the general public.

Intrinsic to this resolution of this policy issue are: (1) the level of trust in the representative of the government and market participant to maintain confidentiality for data that have been so designated, and (2) the competence and ability of the representative to be able to process confidential data to supply standard and non-standard results which market participants and the public desire. Section VI.B addresses issues concerning the designation and maintenance of confidentiality. The remainder of this subsection addresses the issue of processing confidential data to permit some of the benefits of privileged access to it to be shared with other entities with no privileged access.

The CEC Staff proposes to act as an agent of government, market participants, and the public by processing confidential consumption data in both standard and non-standard ways. Standard aggregations have been discussed in Section II.K.1 and non-standard applications have been briefly discussed in section II.K.2. In this section, Staff amplifies upon the general discussion of II.K.2 to describe how it might provide greater access to confidential data to meet the specific needs of various publics not eligible to obtain confidential data.

Staff proposes to create a self-funded project that would process confidential data on a cost-reimbursement basis. Staff would request the computer processing and Staff resources needed to support this activity, and then charge “customers” a pro rata share of these costs. In processing data, Staff would abide by the “conventional” rules of data aggregation described in the following Section VI.B, but impose other restrictions on the results of the processing that meet the spirit of non-identification of specific customers that cannot be readily described in advance. In effect, Staff would conduct a “processing-for-hire” business that used confidential data and guaranteed confidentiality of the results.

Staff believe that this approach is the only reasonable way in which the benefits of the body of data contributed by market participants that is legitimately confidential can be aggregated, merged with other data, and processed so as to extract the full benefits from the data. Handoffs of data aggregated so as to be non-confidential cannot be merged with other disaggregated data, and the full set of analytic inquiries that the underlying data can support cannot be assessed. Only a representative acting as an agent of both contributors and users of the data can process the data at a sufficiently disaggregate level that accurate results can be extracted which are non-confidential.

## **B. Confidentiality Concerns**

Appropriate confidentiality procedures for parties submitting and requesting data and specific guidelines for Staff in processing and releasing confidential data to outside parties will be essential protections and constraints to the CEC's future collection, use and dissemination of energy consumption data. The CEC's OIR on proposed amendments to regulations pertaining to disclosure of CEC records may include specific provisions for energy consumption and related data.

A related activity at the CPUC is the process of establishing confidentiality procedures for a customer information database (CID) soon to be released to interested parties. This database is expected to contain some of the same customer energy consumption and related data Staff has identified in this paper. Staff is concerned that a CPUC confidentiality methodology may establish precedence for procedures that Staff considers overly restrictive. The CEC's OIR/OIIP and related activities at the CPUC are confronting common issues about identifying, designating and protecting confidential energy consumption data.

### 1. Identifying and Designating Confidential Energy Consumption Data

The current forms and instructions for QFER contain rules that govern the release of data that effectively identify or designate confidential data. Further, Staff's aggregation techniques have functioned to protect against the potential release of confidential customer-specific information. Staff is concerned whether these current rules and practices will be sufficient for dealing with future data requirements. Changes to the CEC's confidentiality regulations may include data categories that would be automatically treated as confidential without an application for confidentiality. Staff's current assessment indicates that future energy consumption data reporting to the CEC will include both confidential as well as non-confidential data.

Each gas and electric utility currently doing business in California provides data for QFER that include number of accounts, energy deliveries, and revenue that are designated by county and SIC code. Natural gas data are also designated by rate category. Anytime there are only a few accounts reported in one of the above designations [SIC code, rate category (depending on the level of aggregation), or county], there is a risk of releasing energy consumption and cost

information that could be combined with other public information to identify an individual utility customer. Individual customer data should be designated as confidential in order to protect utility customer privacy.

Also non-utility use of generated electricity and fossil fuels is reported to QFER. Currently each non-utility facility with installed generating capacity of at least 10 MW and that either burns fossil fuels to generate electricity or does not furnish all generated electricity to an electric utility reports to QFER. Each of these facilities reports electric generation and electric sales to third parties, plus electric and fossil fuel consumption. These facilities' energy generation and consumption information should be designated to protect the trade secrets that this information might reveal if it were disclosed. If third parties request energy information pertaining to non-utility generating facilities, data should be aggregated sufficiently to prevent disclosure of an individual facility's electric consumption, electric sales to third parties, or amount of fuel used.

Any other energy consumption or related data submittals that, because of the presence of personal, business, or locational identifiers, might allow identification of specific customer or non-utility self generator information should also be designated confidential by default.

Staff recommends that aggregation of energy consumption or load profile data that protect customer privacy and trade secrecy be considered non-confidential. However, interim confidentiality should be granted until all respondents file a given submittal with the CEC. This will prevent disclosure of this information from putting some market players at a competitive disadvantage.

## 2. Protecting Confidential Energy Consumption and Related Data

Post-restructuring methodologies and procedures (including aggregation techniques) for protecting confidential data are being decided in a series of rulemakings and hearings being pursued by the CPUC and the CEC. The confidentiality methodology for a Non-Confidential Database currently proposed by participants at the CPUC would require quite large minimum group sizes. Staff hopes to determine levels of aggregation that balance the risk of revealing individual customer information with provision of sufficient information to assist market participants and the public interest.

CPUC Forums. At this time, participants in CID workshops at the CPUC have agreed upon a limited scope of data to be released, to include: customer, zip code, SIC identifier, rate category, and monthly usage. In order to preserve confidentiality, proceeding participants have agreed that data provided would be 1) below 500 kW, by five-digit postal code for residential customers and three-digit postal code and two-digit code for non-residential customers, and 3) that accounts must be aggregated to at least 15 customers and a customer's consumption must be less than 15 percent of an aggregation category. CEC Staff finds this level of data release very restrictive and seriously diminishing the usefulness of the database. There are other established techniques for



decreasing the visibility of such records without imposing this degree of restriction. Staff's current practices and recommendations are described below.

CEC Staff Perspective. When third parties request energy consumption and related cost information from QFER, data with only a few accounts should be aggregated so that there is not a risk of revealing individual utility customer energy consumption and cost information. Currently, Staff uses a rule of aggregating energy consumption and cost data that contains less than 10 accounts, whether it is 10 accounts per SIC code, rate category, county or a combination of these designations. Many other State and Federal agencies use a 3-60 rule, where data are released that contain more than three individuals or establishments, and no one individual or establishment represents more than 60 percent of the total value in the category. Data currently collected for QFER do not allow for Staff to determine what percent of energy is consumed in a designated category (SIC code, county, or rate category) by an individual utility customer. Therefore, Staff has chosen a more conservative non-disclosure rule and aggregates data for at least 10 accounts before releasing it.

Confidential data needs to be protected from two basic threats: (1) disclosure by Staff through gross negligence or through intentional activities, and (2) inadequate procedures and facilities to protect the physical security of the confidential material.

Regarding the first threat, future rulemakings may authorize criminal penalties for Staff who release confidential data. Such measures are already in place for PIIRA.

The second threat to confidential data -- protecting confidential data from other than intentional Staff disclosure or disclosure through gross negligence by Staff -- can be organized into three discussions: 1) the need to properly identify confidential data, 2) careful processing of confidential data, and 3) appropriate short- and long-term storage of confidential data.

Currently confidential energy consumption data can be kept in one of three media. Data submitted in an electronic format or transferred to electronic format (key data entry) are kept at the State's Teale Data Center, which has limited access, and is password protected. Data submitted on paper that is less than four years old are kept in locked file drawers inside the Energy CEC Building. These data are only accessible to Staff designated to work with QFER. Data submitted on paper that is over three years old are archived at the State Records Center, which has limited access. Archived QFER data over 20 years old are destroyed under specific confidential data destruction rules.

- A. Identifying Confidential data. Staff will usually receive data after its confidentiality has been decided, but clear procedures are required to guide Staff in handling data that is being "considered for" confidentiality. Staff needs to have ways to make sure that identification is obvious (special stamps, folders, disks, etc.).

- B. Processing Confidential data. Procedures will require password and possibly encryption standards to protect data on computers. Documents, data disks and tapes will require physical protection in special locked storage cabinets and off-site locations to protect them from destruction. Use of personal computer networks will require special procedures and the establishment of an enhanced hardware and software infrastructure to safeguard confidential data. Staff should not place confidential data in these environments until the enhancements are in place.
- C. Storage of Confidential Data. Carefully maintained logs are needed to track the disposition of confidential data. The State Administrative Manual contains procedures to ensure the proper destruction of confidential data, when time comes to do so. Procedures for shredding old and copies of confidential data will be required.

The QFER unit since its inception has protected confidential energy consumption and related data. Current Rulemaking may result in Staff risking criminal penalties for releasing confidential material. Enhanced procedures and infrastructure to protect confidential material will need to be tailored to the type of media and information that will be provided to the CEC in the future.

## **VII. Other Issues**

### **A. Change of Economic Reporting Standard: SIC to NAICS Coding**

In April 1997, the U. S. Office of Management and Budget (OMB) adopted a change to the current SIC reporting system by replacing it with the North American Industry Classification System (NAICS).<sup>9</sup> The change is the direct result of the North American Free Trade Agreement (NAFTA), intended to ease the comparison of Canada, Mexico, and U. S. industry statistics. Implementation of the new code will occur gradually during the next 3-5 years, depending on the agency.<sup>10</sup>

The NAICS system categorizes economic activities into 20 sectors instead of the 10 divisions in the SIC system (see Table 7). The number of industries will increase to 1,171 from the SIC system's 1,004 industries. Approximately two-thirds of the SIC codes directly translate to NAICS, although each of these industries will be assigned a number and label different from the current SIC system. The remaining one-third of the SIC codes that do not directly translate into NAICS will be industries not previously assigned an individual code or split into various industries.

Unlike the SIC codes, which provide up to four-digit detail, NAICS will provide six-digit detail. The first five digits will be standardized between the three NAFTA countries, while the sixth digit will be used to identify subdivisions that satisfy the specific needs of each country. This will allow the new system to give attention to emerging industries, especially those using high-level technology and service sectors with similar production processes.

The structure of NAICS will also be based on a production-oriented or supply-based conceptual framework rather than the output-based characterization inherent in the SIC system. This means that producing units using identical or similar production processes will be grouped together in NAICS. For example, in the Manufacturing industry, logging is based on log output under the SIC system. Under NAICS, logging is classified as Agriculture, Forestry, and Fishing due to trees being production-oriented in Forestry. In another example, software is moved from Business Services in the SIC system and placed in the NAICS Information Sector, the same subsector as magazine publishers and newspapers publishers since all are engaged in issuing copies of works for sale to the general public.

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<sup>9</sup> Further details about the OMB change to NAICS can be found on the NAICS web site: <http://www.census.gov/epcd/www/naics.html>.

<sup>10</sup> The California Employment Development Department (EDD), for example, intends to implement a dual-coded SIC and NAICS system from October 1997 through the middle of the year 2000. SIC-coded data will be dropped after that time.

**Table 7**  
**NAICS SECTORS VERSUS SIC DIVISIONS**

<b>NAICS Code</b>	<b>NAICS Sector</b>	<b>SIC Division</b>
11	Agriculture, Forestry, Fishing and Hunting	Agriculture, Forestry, and Fishing;
21	Mining	Manufacturing
22	Utilities	Mineral Industries
23	Constructions	Transportation, Communication, and Utilities
31-33	Manufacturing	Construction Industries
42	Wholesale Trade	Manufacturing
44-45	Retail Trade	Wholesale Trade
48-49	Transportation	Retail Trade; Wholesale Trade
52	Finance and Insurance	Transportation, Communication, and Utilities;
53	Real Estate and Rental and Leasing	Manufacturing; Service Industries
54	Professional, Scientific, and Technical Services	Finance, Insurance and Real Estate
55	Management of Companies and Enterprises	Finance, Insurance, and Real Estate; and Service Industries
56	Administrative and Support, Waste management and Redemption Services	Service Industries
61	Education Services	Financial, Insurance, and Real Estate; Auxiliary Establishments in All Industries
62	Health Care and Social Assistance	Service Industries; Transportation, Communication, and Utilities; Manufacturing; Construction
71	Arts, Entertainment, and Recreation	Service Industries
72	Accommodation and Food Services	Service Industries
81	Other Services (except Public Administration)	Service Industries; Retail Trade; Finance, Insurance, and Real Estate
92	Public Administration	Retail Trade; Service Industries
		Service Industries; Finance, Insurance and Real Estate
		Public Administration; Service Industries

Individual companies could also cross more than one industry type. For instance, under NAICS, businesses classified as “eating places” (SIC 5812) will be split into seven categories: full service restaurants, limited service restaurants, cafeterias, snack and nonalcoholic beverage bars, food service contractors, caterers, and theater companies and dinner theaters. To accommodate these splits, more information will be necessary to assign a NAICS designation than that needed to assign a SIC code.

Once QFER data collection implements NAICS, previous series of energy consumption over time will be interrupted unless adjustments are made. One approach to preserving the time series of energy consumption data is to produce a dual data series using both SIC and NAICS for a given period of time. This dual series would provide the basis for mapping SIC-based consumption data into NAICS codes. A similar, though less complex, mapping was required in 1987 when OMB made major adjustments in the old US SIC system.

## **B. Coordination of SIC/NAICS Reporting to the CEC and Other Agencies**

The combination of implementing a new industrial classification system and the effects of electric restructuring on data collection raise concerns about how consistent coding can be ensured. Staff have discussed the possibility of coordinating the use of the same NAICS codes assigned to firms by California's own Employment Development Department (EDD), instead of burdening the ESP or UDC to assign NAICS designations independently to each retail electric and gas customer. Coordinating assignment of NAICS would help ensure consistent coding.

EDD has been directed by the U.S. Bureau of Labor Statistics (BLS) to assign a NAICS designation to each firm that provides unemployment insurance in California. Since EDD is one of the leading statistical agencies in the state, other agencies that rely on EDD information will closely track the agency's progress in implementing NAICS. EDD recently released a timeline for converting its database from the SIC system to NAICS. The timeline shows EDD implementing NAICS in stages. The firm with SIC codes that directly convert to NAICS will be completed in August 1998. EDD plans to assign the remaining firms NAICS designations by August 2000. This schedule coincides with BLS's schedule to publish its first Employment and Wages report using NAICS in 2001.

Since energy-related analyses both inside and outside the CEC often rely on energy data coinciding with economic data using NAICS, it is logical to begin changing from the SIC system to NAICS in conjunction with EDD. This change should coincide with other agencies that will be implementing NAICS. Staff, UDCs, and ESPs should meet to discuss the most efficient methods and timing needed to complete the transition.

## VIII. Staff Recommendations

This section presents CEC Staff's recommendations on the actions that the CEC should consider in order to be able to effectively collect the data described in Section IV. All actions fall in the following broad categories:

- Changes to Title 20 regulations, specifically Sections 1301 et. seq.;
- Changes to the Warren Alquist Act;
- Development of Memoranda of Understanding for the shared collection of data;
- Review and enhancement of internal policies for handling confidential data; and
- Enhancement of information technology infrastructure for more efficient collection and dissemination of energy consumption and related data.

After studying the most appropriate long-term mechanisms to collect energy consumption and related data in the future, Staff believes that implementation of the necessary changes would not occur fast enough to accommodate CEC's need to continue to collect the data without interruption. Because of this, Staff recommends a series of short term and long term actions to accomplish CEC's goals in this area.

### A. Short Term Recommendations

Implementation of these short-term recommendations will allow the CEC to continue to collect necessary energy consumption and related data during the 1998-2000 time frame. Short-term actions would not necessarily lead to the most optimal ways of collecting this type of information, but would help the CEC to continue to collect this data during the transitional phase of restructuring.

1. Revise Title 20 regulations to include reporting of energy consumption data by all energy service providers or their designated meter data management agents. Current regulatory language only requires reporting by investor-owned utilities and municipalities. New language should specifically include all private energy service providers or their designated meter data management agents.
2. Revise Title 20 regulations to include reporting of energy consumption by self-generators over 1 megawatt. Current regulations require reporting by self-generators over 10 megawatts, leaving a significant portion of energy consumption unaccounted for. This will be important, as the CEC will need to develop its own estimates of self-generation in the future.

3. Revise Title 20 regulations to include yearly reporting of hourly distribution system load profiles and customer sector load profiles. This would be a shifting of reporting requirements from existing forecasting and data plan regulations to QFER energy consumption data reporting regulations. Additional, more detailed data on customer and end-use load profiles should be obtained through joint research projects, such as with the California Board for Energy Efficiency (CBEE) and potentially the US Energy Information Administration.
4. Revise Title 20 regulations to include submittal of an annual customer file with billing period detail by each energy service provider. This data would be essential for the CEC and the California Board for Energy Efficiency (CBEE) to independently develop surveys and market transformation programs. Additionally, this information will allow the CEC to verify credit claims under its public purpose renewables credit program.
5. Revise Title 20 regulations to delete requirements for submittal of the following information which is no longer needed:
  - One-year-ahead projected sales of electricity and natural gas sales
  - Electric utility estimates of self-generation (QFER Form 13)
  - Gas utility annual estimate of gas use for self-generation (QFER Form 14)
  - Electric utility annual list of self-generating facilities (QFER Form 15); and
  - Electric and gas utility biennial SIC code accuracy report (QFER Form 16).
6. Revise Title 20 regulations to require submittal of energy consumption with the economic sector dually identified by Standard Industrial Classification (SIC) code, and North American Industrial Classification System (NAICS) code if the retail customer already uses this code. The regulations should require all energy service providers and municipal utilities to submit energy consumption data classified by the new NAICS code by January 1 of the year 2000.
7. Revise Title 20 regulations to streamline the collection of energy consumption and related data. Staff should review all existing data collection forms with the emphasis on streamlining data collection procedures and minimizing the burden of completing forms and submitting the data.
8. Revise Title 20 regulations to permit multiple formats for energy service providers (or their meter data management agents) to provide energy consumption data to the CEC. These options should include electronic access or submittal of data in lieu of paper reporting. Options for the CEC to access or receive electronic data from service providers or meter data management agents should be discussed at a CEC Staff workshop. Staff recommends for regulations themselves not to require a common method of data submittal or access for all parties. Each energy service provider (or its designated meter data management agent) and CEC Staff should be allowed to negotiate specific solutions.

9. Continue working with the US EIA to develop data sharing mechanisms. Continued dialogue should focus on how the US EIA and CEC could coordinate activities for the collection and sharing of energy consumption data by self-generators. It should also include ways in which both agencies could share collection of energy sales, revenues and related data.
10. Revise Title 20 regulations to refer to, describe or reference changes in procedures for designating and handling confidential energy consumption data.
11. Enhance internal policy guidelines for the handling of confidential data. Staff believes that the CEC should update its internal policy guidelines for the handling of confidential data. Emphasis should be placed on appropriate Staff procedures and for minimal hardware and software infrastructures that enhance the ability to protect confidential data.

## **B. Long Term Recommendations**

CEC Staff recommends that the following actions be pursued by the CEC in order to develop more effective and least burdensome ways to collect energy consumption and related data. These long-term actions also provide for enhancements related to the treatment of confidential data.

1. Revise the Warren Alquist Act to implement more appropriate definitions of the entities that are required to submit energy consumption and related data to the CEC.
2. Revise the Warren Alquist Act to include civil penalties for CEC Staff that knowingly or accidentally release confidential data.
3. Revise the Warren Alquist Act to include enforcement mechanisms the CEC might use to encourage the prompt and accurate submittal of data as required by regulation.
4. Work with energy service providers (or their meter data management agents) and utility distribution companies to develop electronic mechanisms to allow for the secure, integral, and efficient access to energy consumption data by all market players and governmental organizations who need it to perform their missions. Implementation of this goal will be furthered by development of the universal identifier concept currently under discussion by stakeholders working on direct access implementation issues. Discussions should include the CEC and the California Board for Energy Efficiency, or its designated data collection and analysis administrator, as these entities will require customer-specific energy consumption information that will be handled by many energy service providers.
5. Formalize memoranda of understanding with the EIA and other governmental entities that allow for cooperative efforts in the collection and dissemination of energy consumption and related data. These memoranda should include specific provisions to allow sharing of



confidential data and mechanisms to ensure continued treatment as confidential by the recipient agency.

6. Continue to enhance CEC's hardware and software infrastructure to allow for the collection and dissemination of data using the most efficient, secure, and integral approaches available to the industry.

**APPENDIX**  
**Table A-1**  
**Consumption Data Requests by Topic**

Data Source	Data Provided	Data use
<b>Technology and Efficiency</b>		
QFER Form 4	Electric and gas consumption for specific SIC codes	Consultant completing study of energy consumption in State of California government buildings
QFER Form 4	Southern California electric and gas consumption for dry cleaning	California university researching dry cleaning industry
QFER Form 4	1987-1996 California printing and publishing electricity and gas consumption	Consultant analyzing printing and publishing industries
QFER Form 4	Electric and natural gas consumption data	National laboratory completing energy efficiency study of laboratory-type facilities requiring controlled environment (i.e., semiconductor manufacturers)
QFER Form 4	Water supply and sewerage system energy consumption data	Consultant completing study of energy use in waste treatment plants
<b>Energy Planning</b>		
QFER Form 4	Monthly electric sales for school and water pumping	Consultants completing study of energy loads at different times of year
QFER Form 4 & 5	Southern California 1980-1983 gas deliveries and Los Angeles County 1983 gas deliveries	Electric utility Staff studying pre-unbundled gas market
QFER Form 4	California electric & gas consumption by commercial building type	Consultants preparing information guide about electric generation distribution market
QFER Form 4	California utility electric and gas deliveries by 4-digit SIC	Consultant preparing information for local energy assistance program
QFER Form 4	Average residential electric bill, rate, and consumption for California major utilities	Utility Staff preparing information to publish in municipal utility newsletter
QFER Form 4	California utility monthly gas deliveries	Consultants comparing change in gas deliveries from 1993 to 1994
QFER Form 4	Electric consumption data for California's industry sector	Consultants researching California's changing electric industry
QFER Form 4 & 5	County electricity and natural gas utility deliveries by sector	City planners estimating energy consumption
QFER Form 4 & 5	Gas deliveries by industry type	Consultants providing research to electric utility about gas vs. electric use in specific industries
QFER Form 6	Gas utility's monthly sendout and annual revenue	Gas pipeline company estimates of potential gas markets in California
QFER Form 4	California utility monthly electric sales	Electric utility Staff estimating market share in California
QFER Form 4	California municipal utility electric sales and revenue	Municipal utility Staff comparing electric rates of municipal utilities
<b>Policy Development</b>		
QFER Form 4	Electric sales (kWh) and revenue	Public advocacy group estimating average California electric rates
QFER Form 4 & 5	1996 county utility electric and gas deliveries	County planners analyze effects of energy consumption
QFER Form 4	California utility electric deliveries for specific industrial SIC codes and Statewide total industrial consumption	Consultants estimating prevalence of specific industries in California
<b>Outreach and Publication</b>		
QFER Form 4 & 5	Electric and gas consumption for Ventura, Riverside, and San Bernardino Counties	Consultants preparing information to be published in statistical abstracts
QFER Form 5	County utility electric sales	Government officials estimating how AB 1890's 10% rate relief will effect electric customers
<b>Air Quality and Global Climate Change</b>		

QFER Form 5	Number of residential gas accounts in county	Air quality district completing study of water heater gas consumption effects on air quality
QFER Form 5	County electric and gas deliveries	State university preparing information for county environmental quality report
QFER Form 4 & 5	Electric sales for Southern California counties by 3-digit SIC code	Air quality management district Staff studying effects of changing electric use on air quality
QFER Form 4 & 5	Gas consumption in air districts 8 counties	Air quality Staff estimating effect of gas consumption in the air district
QFER Form 4 & 5	Sacramento area electric and gas consumption	Students developing 20-year model of greenhouse gasses along the Hwy 80 corridor
QFER Form 4 & 5	Gas deliveries by SIC code in Ventura County	Air quality management district Staff study effect gas consumption on air quality
QFER Form 4 & 5	Electric and gas consumption for specific SIC codes for woodworking in Los Angeles, Orange, Riverside, and San Bernardino Counties	Air quality management district Staff study woodworking industry energy consumption effects on air quality
QFER Form 4 & 5	Sales (kWh) and revenue for Bay Area counties	Air quality management district Staff estimate average \$/kWh for Bay Area counties to study effects of price on electricity consumption
<b>Market Research</b>		
QFER Form 6 & 7	1990-1996 gas deliveries and revenue by utility and sector	Consultant preparing study of changes in the gas market
QFER Form 4	1992-1996 California electric sales by utility and sector	Consultant analyzing electric market
QFER Form 4 & 5	1992-1996 electric sales by county and SIC code	Consultant analyzing electric market in specific counties
QFER Form 4 & 5	1995-1996 electric sales by utility, county, and SIC and monthly by utility and SIC	Electric marketer analyzing California electric market
QFER Form 4	Electric consumption by 2-digit SIC code	Consultant interested in types of manufacturers with the largest electric use
QFER Form 4	electric sales by utility type (municipal and investor owned)	Consultant studying California electricity market
QFER Form 4	Gas deliveries by specific 4-digit SIC codes	Consultant determining what proportion of gas used for oil/gas extraction is specifically used for natural gas liquid production
QFER Form 4	100 SIC codes with largest electricity consumption	Consultant studying the largest electric consumers in California
QFER Form 4	Monthly utility electric and gas deliveries by sector	Gas production company investigating California seasonal gas and electric consumption
QFER Form 4 & 5	Residential and non-residential electric deliveries by utility for each county serviced by major utility	Electric utility Staff estimating utility's market share of electric deliveries in specific counties
QFER Form 4	Residential electric consumption and number of accounts	Estimate electric consumption per household for an environmental consulting firm that's developing plans for a waste treatment plant
QFER Form 4, 5 & 10A	Residential, non-residential, and utility electric generation gas deliveries by utility/gas producer for each county	Utility Staff estimating gas delivery market share by county
QFER Form 4	Monthly 1996 electric sales by service area and sector	Electric marketer assessing California electricity sales